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ABSTRACT

In these sessions an attempt was made to analyze the profession of physical education for identification of the elements and reasons for diversification and to synthesize through establishing relationships among various subdisciplines. Attention was focused on the relationships that exist among emerging subdisciplines in physical education and on what should comprise the basic programs of physical education for all students in schools and colleges. Fifteen papers on this subject are presented. (JD)

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No. 11

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M. GLADYS SCOTT

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Foreword

The American Academy of Physical Education was founded in 1926 at a time of rapid development in the physical education profession. The purpose was to provide a forum for leaders to discuss problems pertaining to physical education, health and recreation.

The Academy recognizes the leadership of the founding five, particularly R. Tait McKenzie who served as president of the Academy for almost the entire decade of the 30s. Dr. McKenzie was a physician, an educator and an artist. In each role he had a profound influence on physical education and on the Academy. His sculpture has done much to help the people of the world understand sport as a unifying social and human experience. He designed the medallion, PASS IT ON, as the official Academy seal which appears on the cover of this publication and represents the Academy's continuing goal of leadership. For a number of years the Academy has presented the R. Tait McKenzie Lecture during the national meeting as a memorial to Dr. McKenzie.

Dr. McKenzie was a Canadian who participated regularly in all professional meetings of his day in the United States. Thus, we find the beginnings of the Academy belief in the value of international sharing of goals and understandings, and the base for inviting professional leaders in other countries to corresponding membership in the Academy.

This year, the Academy begins its second half century of service with a new updated statement of purpose which follows:

> The dual purpose of the American Academy of Physical Education shall be to encourage and promote the study and educational applications of the art and science of human movement and physical activity and to honor by election to its membership persons who have directly or indirectly contributed significantly to the study of and/or application of the art and science of human movement and physical activity.
>
> The Academy shall promote its dual purpose by means of recognizing and encouraging the continued exemplary, scholarly, and professional productivity of its individual members; synthesizing and transmitting knowledge about human movement and physical activity at annual, scholarly meetings and via publication of *The Academy Papers*; fostering philosophic considerations regarding purposes of and issues and values related to human movement and physical activity; annually bestowing honors for outstanding contributions to the field of physical education.

In the 1977 sessions of the Academy, an attempt was made to analyze our profession for identification of the elements and reasons for diversification and to synthesize through establishing relationships among our various subdisciplines. This volume is a presentation of the papers which were presented with these purposes as guides.

M. Gladys Scott
Editor

A SEARCH FOR RELATIONSHIPS

Louis E. Alley

Theme

The theme selected for this meeting, "Relationships in Physical Education," represents an attempt to focus attention on the relationships that exist (1) among the emerging subdisciplines in physical education, one with the other, and (2) between each of the subdisciplines and what goes on—or should go on—in the basic programs of physical education for all students in schools and colleges. The relationships to be explored are suggested structurally in Figure 1. Other subdisciplines or subject-matter areas might have been included; however, time limitations required that a limited selection be considered.

Background

Physical Education before the 1960s. From the earliest days of physical education in the United States until the 1960s, attention was focused almost entirely on basic programs, i.e., programs for all students in schools and colleges. The primary purpose of both the undergraduate and graduate programs that were developed for "professionals" in physical education was to prepare practitioners who could prescribe and/or conduct basic programs of physical education that were educationally sound and operationally effective.

In undergraduate curricula, the development of knowledge and skill in a variety of activities, the art of program construction and administration, and methods of teaching and coaching were given major consideration. For the most part, knowledge that provided guidelines for selecting activities and arranging them into basic programs—and for selecting methods of teaching and coaching—was gleaned from such established disciplines as psychology (primarily educational psychology), physiology and appropriate social sciences. Graduate curricula in physical education were primarily aimed at giving advanced training in the teaching, supervision and administration of basic physical education for all students and to the study of the knowledge gleaned from relevant established disciplines. Little thought was given to preparing, through undergraduate

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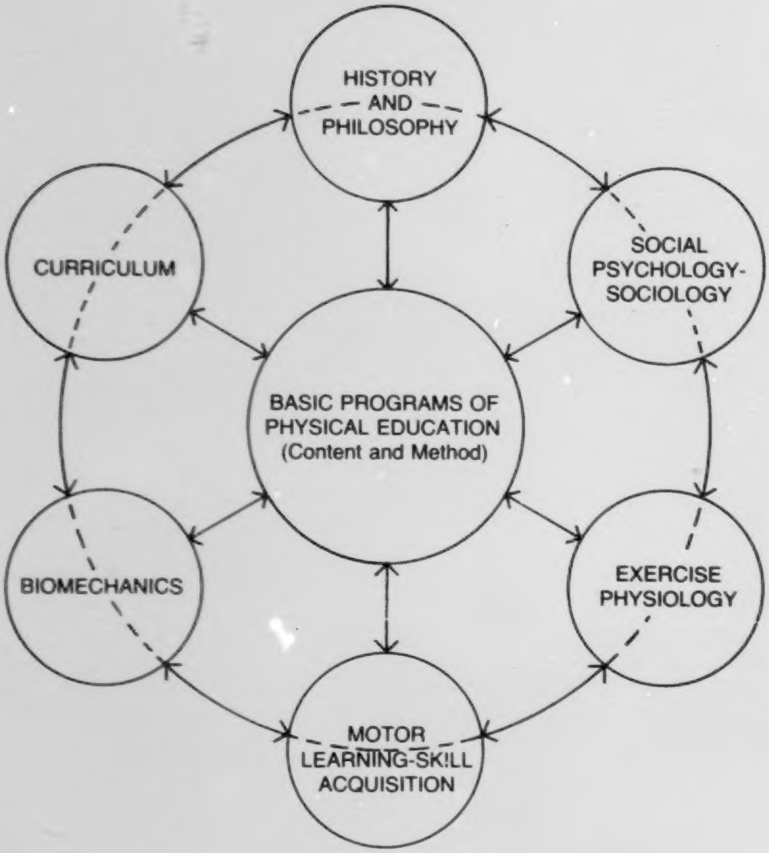
HISTORY AND PHILOSOPHY
CURRICULUM
SOCIAL PSYCHOLOGY-SOCIOLOGY
BASIC PROGRAMS OF PHYSICAL EDUCATION (Content and Method)
BIOMECHANICS
EXERCISE PHYSIOLOGY
MOTOR LEARNING-SKILL ACQUISITION

Figure 1. Structural Illustration of Relationships in Physical Education.

and graduate curricula in *physical education*, competent scholar-researchers who were capable of producing a body of knowledge specifically designed to guide the practitioner of physical education—that is, to develop an academic discipline of physical education rather than to borrow whatever knowledge appeared to be relevant from other disciplines.

The Turbulent 1960s. In the 1960s, what can only be described as a revolution erupted in physical education. Leaders in physical education turned their attention to isolating and defining the basic knowledge that might validly comprise an academic discipline of physical education. In 1962, the Academy initiated the "body of knowledge" project aimed at describing the structure of the body of knowledge in physical education. The directors of Big Ten Universities, led by the late Art Daniels and by King McCristal, utilized the best talents available in Big Ten institutions to work on the same basic problem. Rapid changes occurred in both undergraduate and graduate curricula, particularly in departments that offered the doctorate and were not associated directly with Colleges of Education. In such departments, efforts were made to continue to supply teachers of basic physical education and athletic coaches for schools and colleges and, in addition, to prepare scholar-researchers capable of defining and contributing to physical education as a discipline.

The administrative practice and curriculum changes that occurred took many forms. Some departments attempted to meet this dual commitment primarily by changing course names and contents, others by providing separate streams (or various modifications of streams) for practitioners and scholar-researchers. Subdisciplines such as exercise physiology, biomechanics and sociology of sport appeared and—at the graduate level, particularly—candidates for degrees were required to specialize in one or more of them. The shortage of persons trained in physical education who possessed adequate knowledge and research training to assume responsibility for the various subdisciplines led a number of departments to employ faculty members with advanced degrees in related disciplines, e.g., physiology, sociology and psychology. Others attempted to meet the problem by working out interdisciplinary programs of study with appropriate related departments, thereby utilizing all available talent, facilities and equipment in providing the best preparation possible. Some schools and colleges of physical education divided internally into divisions or departments of sports science, professional studies, socio-cultural area, and the like, utilizing whatever talent was available in physical education to "man the ship."

Present Dilemma in Physical Education

The rapid changes that have been made since the 60s to establish physical education as an academic discipline have not always been rational or consistent. In most instances, the thinking that led to the development of subdisciplines in physical education did not take into consideration the basic program of physical education for all students—a program that involves a much greater number of students than the programs for undergraduate and graduate majors. The 12 years of required physical education in elementary and secondary schools, and the one or two years of physical education for all students in colleges and universities, provide little, if any, preparation of value for advanced work in physical education at the graduate level. There are significant differences among (1) the major objectives—and, hence, the content, teaching methods and administrative procedures—for the basic physical education program, (2) the undergraduate and graduate programs for preparing practitioners in physical education, and (3) the undergraduate and graduate programs for preparing scholar-researchers in physical education. The emergence of the various autonomous subdisciplines in physical education has been characterized by considerable fragmentation and absence of a coherent philosophy that embraces all of present-day physical education. One can no longer intelligently discuss "physical education" without first qualifying the term to identify explicity what aspect of physical education is being discussed. National (and in some cases, international) professional and/or scientific organizations in biomechanics, psychology, sociology, and the like, which bear little or no relationship to long-establised physical education organizations, have been formed by persons in physical education!

A Search for Relationships

A model descriptive of the situation in physical education today might be found in the old nebular hypothesis that attempted to explain the arrangement and motion of the planetary system. According to this theory a whirling nebula, subjected to the centrifugal force that the rotation generated, threw off parts of itself which then rotated in rings of gaseous matter about the nebula and, subsequently, changed into something quite different from the "mother"nebula.

It seems most appropriate at this point in the evolution of physical education to discuss the relationships that exist, or should exist, between and among the mother nebula, physical education, and these rings of gaseous matter it has spawned. What are the relationships, if any, among biomechanics, exercise physiology, sociology of sport, history and philosophy of physical education, etc.? How do these areas of study relate to "gym classes"? How can these relationships be fostered? Can all of these separate parts be linked into an organized, consistent and integrated whole? Or, as has been the case in the past with health education and recreation, has physical education again thrown off "rings of gaseous matter" which will purposefully develop unique characteristics that obscure and deny their origins? Can these subdisciplines in physical education continue to exist and prosper if relationships with basic physical education are severed, or the need for teachers of basic physical education and athletic coaches in schools and colleges vanish? To these and similar questions, the discussions at this meeting will be addressed.

To this end, each person presenting a paper was asked (1) to briefly describe the nature and objectives of the subdiscipline(s) being represented, (2) to briefly discuss the relationships, if any, between the subdiscipline and the other subdisciplines, (3) to emphasize the relationships, if any, between the subdiscipline being represented and the basic program of physical education for all students, and (4) to suggest, if possible, a rationale that encompasses in an organized, consistent and integrated fashion all of the subdisciplines and what goes on, or should go on, in the basic program of physical education.

In each instance the reactor has been asked to react to the presentation from the viewpoint of either the student/performer in the basic program of physical education in schools and colleges, or the person who teaches the student/performer at whatever level of proficiency.

PRELUDE TO UNDERSTANDING RELATIONSHIPS

Marvin H. Eyler

It is appropriate to explore some of the ideas and actions of our past in the hope of understanding what happened in the 1960s, i.e., the movement toward academic awareness described by Lou Alley. It is not a recent phenomenon, for the roots of this academic quest, sometimes referred to as proliferation, but which I prefer to identify as the normal result of specialized interests, go back at least into the late 19th century in the United States. I should like to select portions of that story for review with the hope that it will serve as a basis for a clearer understanding of the theme, "A Search for Relationships."

Diversity of ideas and practice was in evidence early in our brief history. In 1885 a committee of five was formed to develop a plan to advance the field of physical education, to improve its methods and to organize what would become a permanent association. On November 27, at Adelphi Academy at an organizational meeting of an association which was to become our present Alliance, discussions were held on different methods of teaching and on the best system of measurement. William Anderson commented on the relative benefits of different "systems," and Sargent asked some probing questions: Whom are we to teach? Where are we to teach? What are we to teach?

In retrospect, perhaps the original purpose was to raise the standard of physical efficiency in youth by extending gymnastics, games and athletic sports from institutions of higher learning and some clubs to the children and youth of America, thereby helping to improve the vitality of the citizenry. Evidence indicates that there was a need for special organizations and areas of specialization early in our profession. For example, districts were formed to encompass local societies and there were sections to support special interests. There were also societies for public and preparatory schools, for colleges and universities, for medical and corrective gymnastics in the words of R. T. McKenzie, "all branching out but still attached to the parent tree" (6).

In 1899 the question of credit for physical education was addressed, along with another question: what measures are best calculated to secure a dignified and influential place for physical training in the curriculum? President C. W. Eliott of Harvard University quickly threw out all considerations of the question of college athletics in the question posed and added the best means to secure a dignified and influential place for physical training was to eliminate the word *physical* altogether, or at any rate, materially qualify its meaning: "...that illustrates what I mean by saying that this word physical is an encumberance to us and that we should be better off in the point of view of this association if we got rid of it" (1).

In 1889, when asked to remark upon the purposes of physical training, Edward Hartwell said in a notable reply:

> The aim of any and all human training is to induce faculty to produce power. As the means of developing power, certain actions are selected, taught and practiced as exercises. And power when developed takes the form of some action or exercise due to muscular contraction. Viewed thus, muscular exercises are at once a means and an end of mental and moral, as well as physical training since without bodily actions we have no means of giving expression to mental power, artistic feeling or spiritual insight. Without muscular tissue we could not live or move. (3)

Elements of this philosophy were a precursor of some of the statements found in the 1961 *Kellogg Conference Report.*

Luther Gulick in 1890 read a paper, "A New Profession," in which he developed his now famous three grand divisions of exercise: educative, curative and recreative. The paper shows that one of his reasons for developing it related to a general misapprehension "even among intelligent men" as to the nature of physical education. "By many it is regarded simply as a specialty in medicine; others think it merely a department in athletics; others still with more gross ideas regard us as men who devote our time and energy to the building up of muscular tissue" (2). This involved a philosophical question as to what we are and it is precisely one of the elements of our current concern.

In an attempt to clarify thinking, Dudley Sargent in 1891 prepared an interesting paper for our Association entitled "Is the Teaching of Physical Training a Trade or Profession?" Admittedly, the article related more to the teachers of gymnastics in 1860-1880, but nonetheless there are elements of the paper that show concern about who we were. "A more conceited, egotistical, vain, glorious set of men than the old school gymnasts, I have seldom met except among a certain class of semi-professional athletes. From this school the gymnastic teachers in the period between 1860-1880 were chosen. Notwithstanding the low aims and the mistakened motives that guided the instructors at this time . . ." (10). Conflict continued when two years later, McKenzie criticized the direction physical education was taking, that is ". . . becoming a department of preventive medicine at the cost of the recreative element, that Herbert Spencer laid so much stress upon" (7).

Franklin Henry's 1964 landmark article in the *Proceedings of the NCPEAM on Physical Education, an Academic Discipline* was not the first expressed concern about this topic. Seventy years previously Hartwell had talked about the scientific study of the human body and how it related to movement as the basis for physical education as an educational discipline (4).

By 1901 Seaver, making a plea for more theoretical instruction in professional preparation, gave evidence of discontent with the status quo and with the influence of physicians on the professional preparation of gymnastic instructors.

> . . . but I beg you to notice that the popular appreciation of gymnastics has grown faster than the curriculum of the schools. Until today, the best positions were filled by physicians who had had ample preparation along certain theoretical lines, but whose training is decidedly uneven and constitutes a bold landscape made up of sturdy hills seamed by yawning chasms of ignorance that indicated earthquake or cataclysms somewhere in their preparatory course of training. This should not be the case. The physician does not leave his office to fill a pulpit, although this might temporarily help the somewhat diseased condition of theology today; nor does he step from the clinic to the classroom for he has had no training as a teacher. Why should he crowd the teacher of gymnastics from the best positions? (11)

Evidence from the article also indicates that the country still had not developed any standard theory of gymnastics. It states explicitly, "there are comparatively few points on which so-called leaders in gymnastics are agreed today" (11).

Two years later Watson L. Savage of New York City, in giving a review of physical education past and present, indicated that many of the publications on the subject were deplorable. He also attacked the so-called correspondence schools of physical culture and the unfortunate influence they had upon the public mind. Again, showing a diversity of interests and an ever-increasing number of associations, Savage mentioned a meeting for college gymnasium directors for men, a secondary school association for men, and a meeting for women directors. Further evidence that specialized interests were becoming extensive can be found in the establishment of permanent sections which heretofore had been only experiments.

Although elements of the concept for fitness had been developed by earlier physical educators, Dudley Sargent, in speaking on the topic "Ideals in Physical Education" in 1901, indicated that "the great thing to be desired and attained is that prime physical condition called fitness; fitness for work, fitness for play, fitness for anything a man may be called upon to do." Even though there is evidence of differences of ideas and practices as to the best gymnastic system, and to the role of games and sport in education, it is important to note that between 1885 and approximately 1910, physical education did earn a place in academic curricula. It assisted in the development of an extensive system of play and was heavily involved with the nature and content of intercollegiate athletics. It fostered dancing in various forms, as C. H. McCloy pointed out in his article, "A Half Century of Physical Education" (5). Dance was identified as ballet or a modification of ballet and as folk as well as square dance rather than modern dance. It attempted to raise the standards in professional training programs. It evidenced an increased interest in a high-quality life or at least a conservation of life and the relationship of health to this. And finally it showed specialization by the number and nature of different organizations created during this period.

The identification of the social function of education as an area of importance was developed by Thomas D. Wood and Clarke Hetherington. The latter defined education as a lifelong process in which the "infant is conducted from birth, through the period of growth and development to maturity and in which his powers are developed and adjusted to a social order for complete living." He emphasized the importance of play activities in the educational process and indicated that this interpretation might be called "the new physical education" and "that it is physical only in the sense that activity of the whole organism is the educational agent and not the mind alone."

Further attempts to identify the nature of physical education came from such writers as James E. Rogers, who in 1927 discussed why physical education was a teaching profession. By 1936, Carl Schrader talked about the meaning of physical education and decried expediency as opposed to a rational basis for a deeper meaning of physical education. There was even an attempt at this time to change the name physical education to health education to enhance the possibility of obtaining funding for public programs.

Pre-World War II physical education literature shows increases in the number and depth of scientific and scholarly inquiries. Most of the scientific literature reflected interests in correctives and in questions related to kinesiology and to exercise physiology. There was even some evidence of interest in psychological questions related to sport and exercise. In the post-war years, the literature contains much on the nature of physical education, its purposes, and the importance of physical fitness. As a result of a conference called by President Eisenhower, The President's Council of Youth Fitness was established in September 1956.

Metheny's early ideas on the nature of physical education were shown in her provocative article, "The Third Dimension in Physical Education," in which she says, "...then we may define the physically educated person as one who has fully developed the ability to utilize constructively all of his potential capacities for movement as a way of expressing, exploring, developing, and interpreting himself and his relationship to the world he lives in" (8). Staley was quite controversial in the 40's with his concepts of the nature of physical education, which he thought should be centered on sport education because that was the essence of the program in the public schools and in the first two years of college. Time does not permit a discussion of the concepts of physical education as expressed by such writers as Jay B. Nash, Charles E. Cowell, Rosalind Cassidy, Delbert Oberteuffer, Ruth Abernathy, Deobold VanDalen, Warren Fraleigh and Earle Zeigler, to mention only a few. Such a review would reveal some commonality, but also substantial diversity.

I do not intend to deal with the impact of professional preparation upon our search for relationships. Zeigler has ably accomplished this for both the undergraduate and graduate programs and has included an analysis of the conferences on professional preparation, i.e., the Jackson's Mill Conference of 1948 on undergraduate preparation and the Pere Marquette Conference of 1950 on graduate education. However, by 1962 there was still little or no evidence of the importance of these sub-interest areas, at least so that they might be included in the recommended courses in *Professional Preparation in Health Education, Physical Education and Recreation Education,* Washington, D.C., AAHPER, 1962.

By 1972, however, these special interests had become an integral part of professional education, at least as perceived by the conferees at the National Professional Preparation Conference in New Orleans.

> The concept of the discipline of human movement upon which this document is based involved the specific treatment of understandings and knowledges about man as a moving entity. The knowledges and understandings in the discipline are derived from all areas where movement is germane. The structure of the knowledges within the discipline involves research and application of the meaning and significance of movement as reflected in the sociocultural, historical and philosophical aspects of movement; the growth and development of the individual; the physical, biological and behavioral factors influencing movement. (9)

There has been no agreed-upon theory of physical education except from a handful of writers and thinkers, certainly no theory identified as a nationally accepted one—one which has sufficient identifiable characteristics to enable them to be tested and implemented.

There have been several recent attempts which should be mentioned. Many Fellows of this Academy have been involved in trying to formulate a theoretical structure of physical education. The National Conference on Interpretation of Physical Education held on December 9-16, 1961, at the Kellogg Center, East Lansing, Michigan, based its definition of physical education upon the inherent nature of physical activity in human life. The Design Conference of 1965 and the follow-up Zion Conference of 1969, sponsored by the American Academy of Physical Education, the Athletic Institute, and the Division of Physical Education of the AAHPER, attempted to identify and assimilate knowledge identification. As a result of the Zion Conference, 10 "telling" questions surfaced. Follow-up conferences were held on three themes: Play as a Process of Human Interaction, Organic Integrity as the Fundamental Basis of Human Function, and Human Movement as a Developmental Process. Almost simultaneous with these attempts, the Big Ten Body-Of-Knowledge Project began as a result of the organizing efforts of King McCristal and Arthur Daniels. All the elements of the impact of the Big Ten Project are not in, but it can be said that the literature produced as a result of implementing the original ideas contributes to the domain of physical education and that, since it is basically theoretical, it tends to relate more to a discipline of physical education than to a profession. *Quest* devoted its Volume 9 to the question, "Is Physical Education an Academic Discipline?" There are several other pertinent contemporary articles on the subject.

Summary—What Does All Of This Mean?

Viewing current specializations in physical education and their seeming lack of relation to public school physical education programs, there are several points I should like to make. To say that the effort towards specialization is the result of a defensive mechanism against criticisms made by Conant in 1963 and others is to miss an important point. Long before Conant's report there were thinkers in the field who began to espouse scholarly and scientific concerns. I have already alluded to early examples. I believe a case can be made for the influence of forward-thinking scholars, scientists and researchers, many of whom have been or are Fellows of this Academy, who began to study what is now an ever-enlarging body of knowledge well beyond the original and more traditional views of what constituted much of the practice of the field, namely, sport skills, pedagogy, organization, administrations and some supervision.

Another point should be made. With the demise of the normal school, the growth of the disciplinary specialization within this field may very well be reflected by the early influence of schools of education since most of the departments of physical education were placed in such a setting. Kroll has ably shown that such placement influenced our early Ph.D. programs. The structural placement of graduate programs certainly makes an impact on the nature of the programs. In recent years I believe a case can be made to show a positive influence of our separate Colleges of Physical Education upon the breadth and depth of the theoretical elements of our domain. If they have not fostered such a change, at least they have allowed it to take place.

Another point must be made. Specialization in my view is a positive and natural evolution of any dynamic discipline. As graduate education continues, the more research topics which are considered, the more specialization; and the more specialization, the more distinctive each area becomes. This has several ramifications; unfortunately, time does not permit a perusal of them in detail. However, one unfortunate side effect is the extent to which interest in such specialities (to me a requirement of the extension of knowledge) takes away concern for physical education K through 12. It also develops a specialized jargon. It is no wonder that many public school coaches and sport skill instructors do not understand the current language of several sub-specializations, much less what is being accomplished in them. On the positive side, such an extension of knowledge creates a subject matter that tends to be more theoretical and therefore more scholarly and discipline-oriented. Each of the sub-specialities has developed, or is in the process of developing, its own particular interests, jargon and research. It is wholesome and should be classified not only as normal growth but, what is more important to the current discussion at least, it is evidence of a characteristic of a discipline. There are many examples almost too numerous to mention of this phenomenon: molecular physics is one, the history of science another. The parts of two concentric circles which overlap schematically in the case of molecular physics are neither physics nor chemistry, but a new discipline, molecular physics. The more important question is: how does one integrate this knowledge and make it applicable for varying levels of concern? To my knowledge, there never has been an attempt to relate developing theories in physical education to a structured program that could be espoused nationally, that could be developed sequentially so that when a student has had structured experiences in physical education in the elementary school, in the secondary school, and in college, we could assume that he has gained certain knowledges. At the moment this is impossible.

Another problem which contributes to our present dilemma is that we have been unable or perhaps unwilling to establish agreed-upon terminology. It is encouraging to note that a preliminary draft of a list of physical education, health education, and leisure terms has been compiled by a select committee working with Educational Management Services.

Finally, some of our problems stem from our inability to establish and maintain a clear focus, or perhaps a focal point of interest. We have not identified the central interests in our field with any degree of consistency nor determined distinguishing characteristics which serve as a foundation for all programs. Our survival as a viable discipline might well depend upon the direction taken by us in the not-to-distant future.

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RELATIONSHIPS IN PHYSICAL EDUCATION: A VIEWPOINT FROM HISTORY AND PHILOSOPHY

Earle F. Zeigler

Who among us—as the opportunities and freedom accorded young people nowadays occasionally sinks into his or her consciousness—has not wondered if he or she were not born 30 years too soon? And then, to make matters worse, we realize the difficulty of maintaining one's anatomy relatively intact and physically fit, and this makes us feel still worse. If we exercise vigorously, old aches and pains come out of the past to plague us, and new sprains and bruises appear as if to bedevil us even more. But if we don't exercise, we know that the problems will be even more numerous and definitely more serious. So I struggle on with a quite fierce determination to "wear out before I rust out," but down deep anything that implies the cessation of activity, or even of life itself, fills me with considerable concern. Further, we cannot forget that when Lord Tennyson wrote his immortal words, "for men may come and men may go, but I go on forever," unfortunately for you and me he was talking about a brook! We may wish that we could say, "my strength is as the strength of ten, because my heart is pure." And so, one gradually realizes that we in the Academy are very rapidly becoming "the Ancients of the 'physical education' earth" or realm, and that our voices will gradually grow weaker and more difficult to discern because of the babel of the 1970s and the 1980s to follow.

Such thoughts may sound somewhat despairing and pessimistic to those of you who view yourselves as timeless creatures, but I truly do not wish to convey any other idea but that we must still speak out to the best of our ability both vigorously and forthrightly. This is most definitely the time to search for relationships, to discover what it is that we are professing, and then to continue with the development of more effective means of delivery of the knowledge which undergirds our profession.

It has been about 10 years now since I first became aware of, and then somewhat interested in, the fact that "many of the problems recurring in that area [physical education and sport literature] were steeped in a confusion resulting directly from the equivocal use of terms and idioms employed" (9, pp. 56–57). Then, in addition to the development of an understanding that we needed to define our terms more precisely in physical education, it became increasingly apparent to me that "if physical educators wish to act responsibly, they should be able to state that for which they are accountable" (8, p. 94). Still further, at that point one of my associates (Osterhoudt) working with a bibliography of sport and physical education philosophy concluded that physical education and sport philosophers should seek "a more abiding consultation with the mother discipline, with philosophy proper . . . so as to avoid the dogmatic espousals with which the philosophy of physical education and sport has all too long been preoccupied" (7, p. 235).

While I was acquiring the above knowledge as part of my introduction to philosophy's so-called Age of Analysis, and having been concerned for a considerable time with the multitude of objectives propounded by the normative physical education philosophers of yesteryear, it was really only in the late 1960s that I became truly familiar with the work of William K. Frankena relative to educational philosophy (3, p. 6) in which he explained that the term *education* was indeed ambiguous because it could have four different meanings. Subsequent endeavor led me to the delineation of some six different meanings for the term, and it was accordingly possible to transpose such meanings to the term *physical education* as used currently (13, p. 345). The six are as follows:

1. The *subject-matter*, or a part of it (e.g., tennis or some other sport or active game; some type of physical activity involving exercise such as jogging or pushups; a type of dance movement or activity; movement with purpose relating to these three types of activities)
2. The *activity of physical education* carried on by teachers, schools, parents or even by oneself
3. The *process of being physically educated* (or learning) which goes on in the pupil or child (or person of any age)
4. The *result*, actual or intended, of (2) and (3) taking place through the employment of that which comprises (1)
5. The *discipline*, or field of inquiry, in which people study and reflect on all aspects of (1), (2), (3) and (4) above; that which is taught (the "body of knowledge") in departments, schools, faculties and colleges of physical education

6. The *profession* whose members employ (1) above, practice it (2); try to observe (3) taking place, attempt to measure or evaluate whether (4) has taken place; and base their professional practice on the body of knowledge developed by those undertaking scholarly and research effort in the discipline (5).

I am sorry to report that, despite the importance of these distinctions for both our verbal and written communication, no one has ever challenged these distinctions. What is undoubtedly even worse, our colleagues in the profession continue with their daily misuse of the term *physical education*. And to bring this point to a climax, no one presently functioning in sport and physical activity philosophy is investigating problems of this nature in our use of language, nor do these philosophers or quasi-philosophers show the slightest interest in the philosophical analysis of physical education as a social system within our culture! (Of course, the same can be said for the large majority of those disciplinary-oriented people in our field, typically taking their salaries from physical education units of one type of another, who usually call themselves sport historians, sociologists of sport, or whatever.)

If you are wondering about my reasons for raising this perhaps unpleasant topic at this point, please recall that we have been asked to conduct a "search for relationships"—"to focus attention on the relationships that exist (1) among the emerging subdisciplines in physical education, one with the other, and (2) between each of the subdisciplines and what goes on—or should go on—in the basic programs of physical education for all students in schools and colleges." (See page 6.) Before continuing with the response to the questions assigned to each speaker, it seemed necessary to state my belief—based on historical, descriptive and philosophical analysis—that the field of physical education per se is in very serious difficulty because of the separatist nature of practically every entity or unit that has had a direct relationship with the field in the past. By and large—in the United States at least—health education, recreation, dance, safety education, athletics, and even our own scholars and scientists want to get as far away from us *physical educators* as they can! Even if they still take their financial support from us, they are seeking to identify themselves on campus and off as anything but physical educators. Obviously this is a very grave problem—and the American Academy of Physical Education *must* address itself to this issue at every possible opportunity, but for now these remarks are simply serving as an introduction to "a viewpoint from history and philosophy," and there will be a reaction subsequently from the viewpoint of a teacher-coach.

The Nature and Objectives of History and Philosophy

History and philosophy are two related disciplines from which we in physical education and sport must seek guidance, as well as their two corresponding subdivisions—the history and philosophy of education. Our profession must be aware of where it has been, how it developed, what its persistent problems are, and what it should do about them. Sound historical and philosophical research, plus investigation of a descriptive nature related to management as a developing social science, is the type of endeavor to which many of our best minds should be devoted in increasing numbers. Scientific research of a more basic nature is most important, of course, but we simply cannot afford to slight scholarly investigation in the social science and humanities aspects of physical education and sport. A greater amount of bio-scientific truth is absolutely essential, but in the final analysis men and women *act* according to their own systems of social, ethical, and/or religious values.

Our Body of Knowledge. Historical occurrences, social forces, scientific discoveries, and inventions all hold implications for physical education and sport either within or outside of education. In the early 1960s we became concerned about the body of knowledge upon which our developing profession is based. The "knowledge explosion" had caught up with us, and its subsequent increase in a geometric ratio has threatened to engulf us. We were faced with the absolute necessity of "re-tooling" and upgrading our research efforts in universities. In the process some have been able to restructure their graduate programs in order to prepare highly competent research workers who can understand and assess the knowledge available from a multitude of disciplines. Some universities have not been able to make this adjustment for a variety of reasons, and they may soon find their units eliminated or relegated to lesser status in the academic hierarchy at the university level. One has only to examine the annual output of theses and dissertations in the Research Council's "Completed Research," and he or she is soon reminded of the late Paul Hunsicker's comment about the quantity and quality of these endeavors never actually "startling the academic world." Won't we ever learn?

We will only be successful as a profession to the extent that *we*—not our students alone—are able to create this knowledge, to develop ordered generalizations based on these findings, and to make it available to professional practitioners in physical activity and sport for the betterment of mankind. This task belongs to us alone. No other discipline will do this for us, except in a secondary way and belatedly. No other generation of physical educators have ever faced such an enormous problem. I find myself forced to ask if the members of the Academy are truly aware of the problem, and what we are doing to improve the situation through our influence.

History of Physical Education and Sport. More than a decade ago, while carrying out an assessment of the status of sport and physical education historical research as part of the Big Ten Body of Knowledge Project, I found it necessary to write that the "contribution of physical education historians is, relatively speaking, quite meager indeed, and that the quality of this work leaves much to be desired" (10, p. 5). Since then, the situation in the history area has improved considerably because of several professional developments (e.g., the North American Society for the Study of Sport History).

There are some problems that concern me here, however, that should be mentioned. First, far too little of the historical investigation contains what M. Adelman has called an interpretive criterion. Second, those involved do not treat physical education as a social system to a sufficient extent. Third, we have not devised mechanisms whereby our professional practitioners are making adequate use of the material reported in their work. Last, and there are other criticisms that could be made, we are unbelievably provincial in regard to the fine material that exists in languages other than our own.

Philosophy of Physical Education and Sport. In the late 1950s and 1960s there was an upsurge of interest in physical education and sport philosophy. This seemed to develop concurrently with the increased emphasis on research that occurred immediately after the first Sputnik was orbited by the Russians. As the rate of scientific and technological progress accelerated, we soon understood that our knowledge about the physical fields and the biological processes had vastly exceeded fundamental knowledge about human behavior. It has become increasingly evident that man must learn quickly to direct science in the best possible way to serve humanity. At this juncture the question of the values by which people live enters the picture, and we have a rational explanation to account for the increased interest in philosophy—or what was thought to be the subject-matter of philosophy.

However, we find that there are almost as many definitions of the philosophic task as there are philosophers, and any effort to achieve agreement on the best way to do philosophy is doomed to failure at this time. Proceeding from this premise, I can only say that I see philosophers as scholars dedicated to, and perhaps ultimately responsible for, the outlook and values of the various societies and cultures in which they live. The philosopher should attempt to evaluate what we know and believe about the universe and our own sphere of human affairs. Subsequently he may evolve a systematic and coherent plan by which a human being may live. Also, he may seek to justify his position in various ways against other competing philosophical approaches. In the process he may analyze these other positions carefully, make comparisons and show what he believes to be their deficiencies. Further, he may gradually, or even suddenly, change his own position because of cumulative scientific evidence which appears to refute what he had previously held to be true. Finally, he may even abandon the traditional or scientific approaches to philosophizing completely, if he becomes convinced that up to now it hasn't been possible "to be clear about exactly what we are saying or even exactly what the question is that we are asking" (5, p. xii).

More than a decade ago, once again in connection with a body-of-knowledge report presented to the Western Conference Physical Education Directors Meeting (1965), I tried to assess the status of physical education and sport philosophy. Up to that time most of the investigation carried out had been normative and speculative, but the beginning of the existential orientation and the first traces of analytic techniques were appearing in the literature. Fraleigh's excellent analysis of the status of the subject in regard to three approaches (theory building, structural analysis, and phenomenology) appeared (2), and shortly thereafter (1971), Osterhoudt's monumental analysis and assessment of the literature (which built upon the bibliographic effort of the present author and associates) appeared, and was subsequently awarded the Carl Diem Prize. Then in 1974 Harper's review of the literature carried the topic a bit further chronologically (4), while in 1977 the present author's bibliography was updated through 1975.

What may be said about the present status of scholarly endeavor in this subdisciplinary area of our field? The situation in the philosophy area has improved considerably because of a number of different reasons (e.g., the Philosophic Society for the Study of Sport). However, there are some problems that concern me here, too.

First, practically none of the scholars concerned are willing to analyze the social system of physical education in any way. There seems to be a feeling that opprobrium would result from such involvement. Such an attitude is narrow, shortsighted, and quite probably represents an overreaction to the presumed inadequacies of most physical educator-coaches at *all* educational levels. Continuation of such an attitude will only serve to widen the gap between these "misanthropic" physical educators who often still receive their financial support from educational units perceived as physical education by the general public.

Second, I am therefore very concerned about the future of this subdisciplinary area of specialization within physical education and sport because I do not know of one university in North America where one can specialize in this area at the *doctoral* level in a department where there are a minimum of three producing scholars in physical education and sport philosophy who employ one or more of the recognized philosophical research techniques.

Third, my feelings are mixed about the Philosophic Society for the Study of Sport. Naturally, I am delighted that such a professional society exists, and I am pleased that many with a physical education orientation have an opportunity to relate to a somewhat smaller, but active, group of trained philosophers who are sincerely interested in sport phenomena. However, there is only one educational philosopher in this group and one other who began with a physical education background from Springfield. Also, I don't think that this group will be of any assistance to the profession of physical education in any way. Further, the membership could undoubtedly be increased nationally, continentally and internationally if the terms *movement* or *physical activity* were added officially to the name of the Society.

Last, here too we have not devised mechanisms whereby professional practitioners in our field of physical education and sport can receive any help whatsoever from the scholarly contributions of the Society's members. Nor does the Society's journal hold any interest for the general public. Obviously, this gap must be bridged in some way similar to the approach of the Canadian Association of Sport Sciences recently to publish a scholarly, but applied magazine that can be read with interest and profit by the typical professional practitioner. (It must be said also that there is no evidence either that those functioning in the 8 to 10 other recognizable sub-disciplinary areas of specialization are really aware, or are making any use, of the journals which both the history society and the philosophy society are publishing.)

Relationship of History and Philosophy to General Education in Physical Education and Sport

The primary focus concerns the relationship of history and philosophy to the general education in physical education and sport of our society. My investigation over a period of years has been accomplished by recasting unilateral historical narrative into an approach to physical education and sport history that delineates the persistent, recurring problems that have emerged since man's history has been recorded in sufficient quantity for reasonably intelligent qualitative analysis. This pragmatic orientation features an approach in which an inquiry is conducted to ascertain, for example, what influence a type of political system in a culture had on the structure and function of its educational system, and concurrently, on the program of physical education and sport offered. All history can, therefore, be viewed with an eye to the persistent problems (i.e., social forces or professional concerns) that have revealed themselves as a result of an in-depth analysis. Thus, no matter which of a number of historical theories or approaches is employed, such a "persistent problems" approach guides one to search for the interpretive criterion, to seek out underlying hypotheses, to ask how this or that historical treatment aids in the analysis of past problems, and to inquire whether new insight has been afforded in the search for solutions to problems that people will perhaps always face. This approach has been adapted to our specialized field from educational history, and this adaptation is my own contribution to a very large extent (1; 11). (See Figure 1.)

This approach to historical analysis makes history much more interesting and exciting in the general education of college students, not to mention the insight that it offers to the professional physical education student. It is based completely on an individual presentation of the problem areas—persistent or perennial problems of the present day that have been of concern to men and women over the centuries. A conscious effort is made to keep the student from thinking that history is of antiquarian interest only. The student can move back and forth from early times to the present as different aspects of a particular persistent problem (e.g., the concept of 'the healthy body') are treated. This "longitudinal" treatment of history is in contradistinction to a strictly chronological one (as interesting as that often is). These persistent problems, then, (i.e., the influence of values, nationalism, etc.) are the

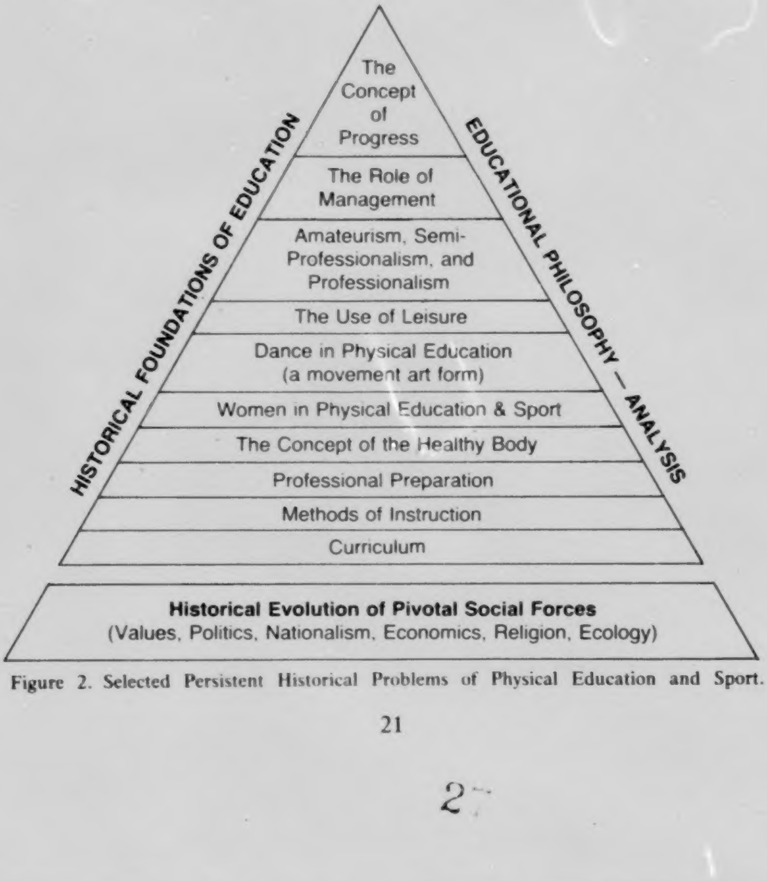
The Concept of Progress
The Role of Management
Amateurism, Semi-Professionalism, and Professionalism
The Use of Leisure
Dance in Physical Education (a movement art form)
Women in Physical Education & Sport
The Concept of the Healthy Body
Professional Preparation
Methods of Instruction
Curriculum
HISTORICAL FOUNDATIONS OF EDUCATION
EDUCATIONAL PHILOSOPHY — ANALYSIS
Historical Evolution of Pivotal Social Forces
(Values, Politics, Nationalism, Economics, Religion, Ecology)

Figure 2. Selected Persistent Historical Problems of Physical Education and Sport.

ones that recur again and again down through the ages, and will, in all probability, continue to occur in the future along with others. A problem used in this sense (based on its early Greek derivation) would be "something thrown forward" for people to understand or resolve.

Physical Education and Sport Objectives for the Future. In addition to providing young people with a general education that includes physical education and sport history developed through the use of an interpretive criterion, I have been concerned with philosophical analysis employing several different research techniques. One of these techniques has been so-called structural analysis. Even when fortified by the results of scientific investigations the resultant analyses have been criticized by some who claimed that I had committed the naturalistic fallacy (i.e., deriving an "ought" from an "is"). Nevertheless, there are still philosophers who believe that the most fundamental goal of philosophy is to help man "assimilate the impact of science on human affairs" (6, p. 16). Following up on his concern with whether man is to be the "master of the machine," Kaplan states that "the business of philosophy is to provide a system of ideas that will make an integrated whole of our beliefs about the nature of the world and the values we seek in the world in fulfillment of our human nature."

I believe most fervently that this function, among others, is largely the task of the philosopher. Thus, I have developed a set of aims and objectives for physical education and sport that relate to the general education of all students (including our own majors in physical education). During the next 25 years, the need is to move ahead, whether it turns out to be to the right, to the left or to the center. (As you might suspect, my statement has a scientific base, and is laced throughout with progressivistic leanings containing important elements of pragmatic naturalism, existentialism and utopian reconstructionism.)

As we move toward 2001, it will be absolutely necessary to affirm the priority of man and woman over athletics and physical activity of all types. As was so well stated by the late Arthur Steinhaus, "sport was made for man, not man for sport." As important as so-called *physical* fitness is, it will be very important to promote the concept of *total* fitness. Sport and physical education can provide excellent problem-solving experiences to children and young people; hence, students should have the opportunity to select a wide variety of useful activities, many of which can help to develop 'social intelligence' (as defined by Dewey). The activities offered should bring natural impulses into play in physical education. Such classes and intramural sports and physical recreation are more important to the large majority of students than interscholastic or intercollegiate athletics and deserve priority if conflict arises over budget allotment, staff availability for instruction and guidance, and use of facilities. However, provided the above needs and interests have been met, full support should be given to team (as well as individual and dual) experiences at as high a competitive level as possible in keeping with the overall educational aim (12).

To create the ideal situation in the future, the concept of universal man and universal woman should be promoted as the aim of general education for all. We must keep firmly in mind the idea of individual freedom—the absolute necessity of the person having the opportunity to choose for him/herself just as soon as "awakening awareness" makes such individual freedom possible. Such choice should be based on knowledge, skills and attitudes as determined by self-evaluation. The child should be made to feel at home in the activities program while striving for actualization of self. It is vital that the person select the values that are being sought in the activity. The physical skill of modern dance should be included in the program prominently so that the young person may creatively explore body movement as desired.

The ideal of social-self realization in a world culture is basic in a world living as dangerously as ours seems to be at present. There can be no such thing as a fixed or universal curriculum in physical education and sport. It should be developed through the employment of shared planning. Wholesome physical recreational skills should be stressed, while at the same time relaxation techniques should be learned to combat life's many tensions. Mental hygiene and sex education should be included as integral aspects of a total program. While appreciating the importance of self-expression, there should be strong emphasis on democratic methods to help the group realize goals arrived at through democratic consensus.

Last, the field of education, including sport and physical education within the schools, must play a vital role in the development of what might be called an "ecological awareness." Our students must develop and maintain *physical* fitness within a concept of *total* fitness based on a goal of international understanding and brotherhood. The field of physical education and sport must assist the process of general education for all so that the urgent need to take care of the manifold ecosystems on this "closed" planet are fully understood. We must help to teach young persons the vital necessity of assisting with the basic recycling needed so that a "reconstituted" earth will be transmitted to future generations.

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A TEACHER-COACH'S REACTION TO ZEIGLER'S "A VIEWPOINT FROM HISTORY AND PHILOSOPHY"

Madge M. Phillips

My remarks are not as much a reaction to the Alley and Zeigler papers as they are thoughts generated from having read the papers. The papers made me aware that I am not "just a teacher" but a physical educator who was fortunate to have had a liberal arts background and to have taught in a liberal arts college. My 25-year career as a gym teacher represents a collection of meaningful experiences in colleges and universities. I have spent 14 years in a liberal arts environment, the last 8 of which have been as a teacher of fencing, folk dance, field hockey, and other assigned physical education activities. I have coached field hockey, advised departmental service and honorary groups, sponsored a faculty badminton club, advised students, and served on numerous faculty committees. I taught a few "major" classes but my typical schedule included five to six activity classes, coaching, advising and committee work. In addition, I was taking course work during the summer for a higher degree and reading during the year for comprehensive exams, personal satisfaction, dissertation, and unfinished course reading lists.

Early in my teaching career, and at about the time I was wondering if all my course work and required experiences were essential for teaching physical education classes to college students, I went to the opening showing of the chairman of the Art Department's modern art work. One of the viewers was shocked when informed of the price of one of the paintings. I heard her ask the artist how many hours it had taken him to paint a particular work. The reply was an emphatic and emotional, "My God, lady, every minute I have lived went into that painting!" Teachers of gym classes could also be emphatic and say with emotion that the sum of their experiences contribute to their effectiveness as a teacher. I soon discovered that the students majoring in philosophy, Spanish, psychology, history, sociology, biology, and physical education did not deposit their intellectual abilities on the steps of the gymnasium when they came to my classes. They were curious, analytical, concerned, confused, alive and animated. They expected me to have read what they had read or were reading; to take time to discuss important campus and world issues; to explain some of the scientific aspects of performance; to interpret complicated fencing or field hockey rules; to show the relationships between the dance forms and cultural values of various Indian tribes; and to appreciate their creativity or new ways of performing traditional sport skills. They assumed that I knew how to teach physical education but they also assumed that I was an educated person.

Today there is a concern that a high percentage of the nation's work force is overeducated. Dr. John G. Kemeny, president of Dartmouth College, asks, "Who are these 27 percent who suffer from this terrible disease of overeducation? All of a sudden it hit me- *I am one of them*. A doctorate in mathematics is not a requirement for college presidents, therefore quite clearly I am in the category of the overeducated" (2). Dr. Kemeny could very well have been thinking of those in our group who are constantly suggesting that we are overeducating the gym teacher when we recommend or require courses in our subdisciplines.

> The question we must ask ourselves is why the word overeducated is used in a derogatory sense? It presumably just means that you know more than you absolutely need to know for your occupation. Clearly 'undereducated,' in that you are not qualified for your job, is a derogatory term.

> But why is it a terrible thing if you know more than the absolute minimum you need to know to earn a living? Think about what must have happened to our civilization if, indeed, we can turn a word like 'overeducate' into a derogatory term! (2)

Historically, liberal education has attempted to determine and clarify human needs and values. Many considered it basically an ethical enterprise in which we were all made aware of our humanity. We believed that the unexamined life was not worth living. Critical inquiry prevailed and students and faculty carried on the traditions which rested upon a humanistic rationality that made value consideration foremost. Today, many fear that "cognitive rationality" and its stance on value neutrality may be a major factor contributing to the death of the liberal arts tradition. Murchland's article, "The Eclipse of the Liberal Arts," develops this particular idea and suggests that Ayer's *Language, Truth and Logic*, "one of the bibles of twentieth-century thought," has contributed to cognitive rationality. According to Ayer, ethical judgments have no objective validity whatsover. They are insulting to rational minds and unscientific. According to Murchland, Ayer "...became a kind of Moses of positivism whose first commandment was: Thou shalt not commit a value judgment" (4, p. 24). Teaching gym classes in a liberal arts environment was an opportunity to use the gymnasium, fields, swimming pool and office as laboratories for critical inquiry and for exploring the "examined life" approach for the individual, the group, and of society itself. Value neutrality had no place in these labs.

The new "gym teacher" is entering teaching at a time when the pursuit of academic excellence has become a platitude. Confusion is deep seated, not only among physical educators but in education and other major social institutions. According to one who might be identified as a cynic,

> ...our confusion is so deep seated that we no longer understand the meaning of simple words and phrases. The pursuit of excellence is equated with espousal of elitism; the compilation of credits is deemed an education; the mission of the university is confused with that of a community college; the obtaining of a grant is confused with scholarship; research is equated with money. The use of gimmicks is equated with good teaching. Quality is quanity. Bigger is better. Obscurity is profundity. (1, p. 5)

Hopefully the gym teacher with a background in history and philosophy will not be victimized to the extent that shallow phrases become the substance of what passes for a college or university education. A course in logic, ethics, intellectual history, sport studies, sociology of sport, movement theory, and developmental aspects of perceptual motor skills, might be better than a course in Professional Physical Education 6000, A New Bag of Tricks for the Teacher of Physical Education.

An alumna from the liberal arts college in which I taught continued her work in medical school and shared some information regarding medical school alumni. I believe, or am suggesting, that her comments could have been made by a physical education alumnus.

> In the first five years after graduation, alumni say that they should have been taught more practical techniques. In the next five years, they say they should have been given more basic theory. In the 10th and 15th years, they inform the faculty that they should have been taught more about administration or about their relations with their co-workers and subordinates. In the subsequent five years, they condemn the failure of their professors to put the profession in its larger historical, social, and economic context. After the 20th year, they insist that they should have been given a broader orientation to all knowledge, scientific and humane. (5)

Eventually, those who enter a profession will see the relationships between areas of study which are non-professional in nature and those which are identified as professional preparation courses. They are also beyond saying that one is more important than the other.

Mumford's synthesis of Kroll's way of bringing the professional-discipline issue into focus is worth repeating.

> Kroll suggests that the traditional pattern of a typical undergraduate major in physical education would be analogous to preparation for the ministry were such preparation to consist only of courses dealing with (1) the relationship of church to society; (2) counselling in church work; (3) methods of delivering inspiring sermons of a non-controversial content; (4) professional organizations; (5) administration of church affairs; (6) the law and the church; (7) non-taxable fund-raising ideas, and so on. Kroll's point is that all these courses merely describe a job analysis of the professional activities of clergymen, the whole training program being completely devoid of any in-depth study of theology itself. (3)

I recently shared these thoughts with a fourth-year Jesuit seminary student who said amen to Kroll's analogy. He indicated that he would spend a year or two as an intern in a parish. He was apprehensive regarding his ability to prepare and deliver "sermons" and thought he should have either course work or independent study in this aspect of his work. He very quickly added that he would be spending a lifetime as a professional and could take advantage of conferences and workshops to acquire some of the practical skills of his profession. He stressed that he would be a student for just a few years and did not wish to use this time to do those things he could do at a later time.

Zeigler suggested that many of our scholars and scientists want to get as far away from physical education and physical educators as they can and that they are seeking to identify themselves as anything but physical educators. I agree that this is a grave problem. An equally serious problem is that there are also teachers of physical education who are proud of being physical educators and who wish to be associated with physical education but who are also thinking seriously about getting away from physical education. These are physical educators who have had undergraduate and graduate programs in which they have focused on a "body of knowledge" or "discipline" approach and who do see relationships between the various subdisciplines and effective teaching of students in our activity programs. When these "bright-young-or-old-best-of-two-world" physical educators see gym teachers teach intuitively without a theoretical or conceptual background; see gym teachers who make no attempt to be other than tradesmen; see the system or the establishment support antiquated programs; and *because* they see the relationship concept play an insignificant part in the teaching-learning process—they too are tempted to leave physical education. Their motivation for departure could not be identified as elitist or intellectual snobbery. They have become disillusioned. We need to continue to attract bright young people to physical education but we also must encourage them to stay with us.

During a graduate course in Personality Theory at the University of Iowa, Dr. Mumford Kuhn, the "Who Am I" Kuhn, shared this story with us. A professional couple in Scarsdale, New York considered sending their four-year-old son to a prestigious preschool. The school's counselor informed them that the child would be required to take tests to indicate his probable success in the school. The little boy took the battery of tests and all awaited the results. When the parents were called to the school director's office and informed that it would be best not to enroll the child in the school, they asked for a description of the test. The subjects were given two pieces of a 10-inch square cloth one of which contained seven buttons and the other, seven button holes. They were permitted 10 trials to fasten the buttons holes to the buttons. The two highest and two lowest scores were eliminated and the average of the remaining 6 trials was considered the final score. When the parents expressed amazement to their son that his score was not high enough to be admitted to the preschool, especially since he could button his own clothing, the child replied, "but Dad, those pieces of cloth were not attached to anything."

If we understand the concept of relationships, it seems that we should be able to identify that to which we are attached. In our field we have many isolated tasks which are not attached to anything. If we know to what we are attached—the mother nebula—then we should have no difficulty understanding the relationships which exist among those rings of gaseous matter, or of our subdisciplines. I believe it just might be more appropriate to identify all of the subdisciplines as the mother nebula and then view the ways in which we practice and use this information as the rings of gaseous matter. We continue to be guilty of having a profession which gives birth to a discipline rather than having a discipline which gives birth to a career or professional alternatives. As long as there is room for those with an interest and background in history and philosophy; as long as we search for relationships to discover what it is that we are professing; as long as we continue with the development of a more effective means of delivering the knowledge which undergirds our profession; as long as we search and research—there is reason to be optimistic about the future of our discipline and profession.

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RELATIONSHIPS IN PHYSICAL EDUCATION: A VIEWPOINT FROM MOTOR LEARNING-SKILL ACQUISITION

Muriel R. Sloan

The Nature and Objectives of the Motor Learning Skill Acquisition Subdiscipline

Motor learning, its objectives and scope, and the qualifications and functions of motor learning experts have been widely discussed and variously interpreted, possibly more than any other subdiscipline in the physical education field. The specific nature or priority objectives of this subdiscipline thus are open to individual interpretation and practice. In a global sense, I would describe the study of motor learning as being concerned with the evolution of skilled movement behavior. The term *evolution* is used deliberately in the sense of the development of skilled performance through the process of increasing differentiation and hierarchic integration and control of movement. We see this process in the developing movement repertoire of the very young and in the processes involved in the acquisition of more specific, complex and highly organized movement skills. By *skilled movement behavior* is meant movement which successfully accomplishes the intent of the mover. This encompasses qualitatively effective performance in movement with a variety of purposes as well as acquisition of specific skills, such as are found on the playing field, in the dance studio or in "gym classes."

Within this large sphere of study, some of the most commonly stated objectives are: (1) understanding the processes which underlie the ability to learn and perform motor skill; (2) development of theory and laws which describe, explain and predict skill acquisition and performance; and (3) development of theories of instruction and formulation of teaching models with practical implications for the teaching of skills. A quick review of some current emphases may help to highlight the nature of the field and provide a base for examining its relationship to "gym classes."

First, there has been a shift from analysis of the material or tasks to be taught and ways for organizing practice of those tasks, to analysis of the characteristics of the learner, particularly to analysis of the processes involved in perception and control in movement behavior. Thus, we have a process analysis orientation superseding a task analysis orientation. Second, a strong and needed theoretical orientation has seen the increasing adaptation of research efforts toward testing existing learning and performance theories from other disciplines, particularly from psychology and neurophysiology, and the development of new motor learning theories. Third, this theoretical orientation, coupled with the process analysis approach, has led to a heavy reliance on communication theory and cybernetic and information processing models as frameworks for research and application to learning and teaching. Fourth, there has been utilization or reliance on singular theoretical models to explain and describe the learning process and to prescribe teaching strategies rather than an eclectic or non-theoretical approach.

The vigor of the subdiscipline and its impact outside of our field is evident from the acclaim given recently by a psychologist to motor learning researchers for spearheading the revitalization of interest in motor learning by psychologists in the past 10 years (2).

Relationships between Motor Learning-Skill Acquisition and "Gym Classes"

From the viewpoint of those who teach physical education, there is no doubt that the subdiscipline of motor learning should be closely related to what they do. Even though our profession has had a propensity for shifting its objectives with the prevailing winds, one of its primary and long-standing objectives has been the development of skilled movement behavior and particularly the acquisition of specific motor skills. Among motor learning specialists within the subdiscipline, there appears to be unanimity in the view that unearthing the basic laws and principles which govern the motor learning process will *eventually* contribute to more effective teaching of movement skills. The key word is "eventually," and there are varying tolerance levels for this period among motor learning specialists, as reflected in their research objectives and in the tasks studied.

The combined emphasis on theory building and process analysis has led many researchers to forego study of complex movement skills in favor of relatively simple movements whose dimensions are easily controlled in a laboratory setting. Others attempt to use movement tasks more closely related to those of interest in gym classes. The first group would seem to have more tolerance for a time lag, not necessarily because they see no value in physical education activity, but because their sights are on presumably more far-reaching ones, namely, theory development and the status of a science. Proponents of this approach would seem to agree with Adams when he said, "The villain that has robbed 'skills' of its precision is applied research that investigates activity to solve a particular problem, like kicking a football, flying an airplane, or operating a lathe. This accusation sounds more damaging than intended, because applied research is necessary when basic science lacks the answers." Later, "...the task centered approach was justified when practical reasons required us to know tasks and efficiency in them, but it is a limited way of achieving the larger scientific goals of law and theory" (1).

To search for the potential relationship between such theory goals and physical education programs, one need look no further than the experience of the discipline of psychology itself. At the 1975 annual meeting of the Eastern Psychological Association, Glaser (7) reiterated a belief expressed by John Dewey in 1899 in a presidential address before the American Psychological Association. Dewey asserted that the real essence of the problem is found in a connection between the two extreme terms—between the psychological theorist and the practical worker—through the medium of the linking science. Regarding the time span between the results of basic research and its practical application, Thorndike has defined "eventually" as between 30 and 50 years. While Dewey pressed for an intermediate linking science or structure to intervene between learning theory and practical application, Thorndike was concerned with more direct application of what he knew about learning and psychological method to teaching practice. In addition to his general theory of learning, he brought to educational topics a scientific approach involving careful analysis of the nature of the task, the design of teaching techniques as a function of his experimental findings, and measurement of what the task analysis indicated were the components of the performance being learned.

A science of motor learning based upon study, however profound, of only simple graded responses may never have relevance for "gym classes." That, however, has not been and is not the goal of psychologists in motor learning. Do the psychologist and the motor learning specialist in physical education part company in this respect? Although some physical educators have long recognized the perceptual and cognitive components of skilled movement and based research and teaching practice on that concept, it was psychologist Fitts' definition of perceptual-motor skill which gave it credence and drew psychologists' interest. Fitts linked gross motor and manipulative skills with language and thought processes because of a common perceptual basis (5).

For example, Posner and Keele (13) speak of the factors causing the study of skilled movement to once again be of particular concern to psychologists. One is that it provides a good way of approaching issues of attention and performance of mental operations in general, this assumption resting on Fitt's definition of skill. Further, that information about the physiological substrates of action suggests that studies of voluntary movement may rival vision and audition as a vehicle for studying the relationship of brain and behavior. Lastly, that the development of information processing psychology provides a framework for studies of the roles of attention, memory and perception in the control of movement. Although there is obviously overlap in objectives, the psychologist uses motor skill as a means of studying perceptual and cognitive processes in general, while the physical educator would be interested in the role of perceptual and cognitive processes in the learning of motor skill per se.

If we agree that researchers need to use tasks which best enable them to effectively study variables of interest, then motor learning researchers should find value in studying a variety of tasks which are representative of the perceptual, cognitive and motor demands of movement found in physical education and dance programs. Whiting, a psychologist and prolific writer as well as a researcher in the acquisition of perceptual motor skills, said recently, "Surprisingly, an historical overview suggests that an original concern with the skilled movements of people at work and play in their natural settings has been gradually replaced by successively more restrained requirements of the laboratory. This has happened to such an extent that it might almost be believed that moving a cursor along a linear track would serve as a base line model for the understanding of skilled behavior!" (20).

A number of motor learning researchers in physical education are attempting to be interveners between learning and performance theory and application to teaching. The often-cited skill acquisition model and application by Gentile (6) is one example, along with others. (14, 18, 21). They have all drawn on or developed learning or performance models and have attempted, to some extent, to relate to these models the skills or skill components of activities found in "gym classes."

Even with inclusion of more complex skills in acquisition models, however, there appear to be limitations in analysis of the movement tasks which may limit usefulness for teaching implications. This may be a function of priority attention to the perceptual demands made by the environment in which the skill is to be performed, as in the open and closed continuum—or it may be lack of application of the feedback concept central to information processing models to the goals, processes and products of movement itself.

For example, striking skills such as batting are often used to illustrate perceptual-motor demands, goal-setting and feedback. Often the analysis and, therefore, goal-definition focuses on the obvious requirement of joining bat with pitched ball. Equally obvious is that an entirely different idea of the movement demands of the batting task, of the appropriate motor plan and of pertinent feedback would result if the requirement were to bunt the ball or to hit a home run.

Another vital facet of the learning process is the individual learner. This should be a truism from an information processing view, requiring that we consider variables which influence selection, interpretation and use of information in the development of skilled movement behavior. If we are to benefit from the experience of older disciplines such as psychology, particularly with respect to instructional application or lack of it, we must combine what have been two separate historic streams of thought, method and affiliation which exist in psychology—the experimental and the correlational approach.

Two Approaches: Experimental and Correlational

The experimental approach is concerned with discovering general laws of behavior where the scientist changes conditions in order to observe their consequences. The correlation approach is concerned with already existing conditions and with variations between individuals and social groups. Cronbach describes the lengths to which experimentalists go to avoid "embarassing differential variables," such as decortication of subjects, drawing subjects from narrow subcultures, etc. He depicts the correlational psychologist as being in love with just those variables the experimenter left home to forget (3)!

Applied to teaching strategies, in the experimental approach teaching methods are the main variable and the quest is for the "best method" for the majority of the given population on a given task. The correlation approach seeks to find methods for a variety of individual and group differences. For the teacher whose students bring a multitude of individual and group characteristics to the learning situation, there cannot be one best way, especially if the teaching model is based upon research with restricted populations. Thus, research has to examine the relationship of individual variables to learning strategy in the acquisition of skills relevant to physical education. Beyond general models, based upon communality of process, the result may be different optimal teaching models for different individuals as well as for different tasks.

Research Studies

Let us briefly examine other factors which give some insight into the potential relationship between the subdiscipline and school programs. A high proportion of the research emanating from the field of physical education is in the form of theses and dissertations. A review of research related to teaching physical education published several years ago cited over 300 references (12). Of this number, approximately 70 percent were unpublished graduate studies; among the remaining 30 percent, a number were published graduate studies. The authors of that review acknowledge that the most obvious single event that might be related to changing what teachers do in the gymnasium is the explosion of research activity by physical educators in motor learning.

To evaluate the possible impact of a discipline approach on the nature of graduate studies in motor learning over the past 10 years, a survey was done to determine any shifting emphases from skill acquisition research specifically related to teaching to more theoretical orientations (22). Between 1967 and 1971, approximately 40 percent were theoretically oriented and 60 percent were teaching oriented. Between 1972 and 1976, approximately 30 percent were theory oriented and 70 percent teaching oriented. It appears that graduate students either continue to prefer to make application to teaching or are required to indicate practical significance as a reason for their research.

A survey of articles published in the *Research Quarterly* revealed a different pattern (24). Between 1966 and 1970, approximately 60 percent were theoretically oriented and 40 percent teaching oriented. Between 1971 and 1975, theoretically oriented reports rose to 85 percent. Equally noteworthy is the fact that there was a substantial decrease in motor learning research reports in the last five-year period, compared to the previous five-year period. An explanation for the decrease may be the fact that more theoretically oriented studies concerned with motor learning and motor performance have found other vehicles for communication. A survey of the *Journal of Health, Physical Education, Recreation,* which is the publication most popular with teachers of physical education, suggests that the bulk of the articles related to teaching methods for specific activities are based upon the experience and logical analysis of the writer rather than on research in motor learning (23).

Who speaks to the motor learning researcher or to whom does he listen? It is interesting to note the references in articles and in motor learning books by physical educators. Some reveal almost complete reliance on other disciplines for examples of research to fit particular motor learning frameworks. In the area of KR, for example, it would appear in some instances that nothing has contributed to our knowledge since drawing the three-inch line.

Where else are the results of the "explosion" of research in motor learning going? Some is reported at AAHPER research section meetings, more is reported at meetings of intradisciplinary organizations such as the North American Society for the Psychology of Sport and Physical Activity, the Canadian Psycho-Motor Learning and Sport Psychology Symposium, and at meetings sponsored by disciplines other than physical education.

There is no question that these avenues are vital to progress in motor learning research. The growth of these modes of inter- and intradisciplinary communication attests to the vigor of the subdiscipline. But we are not asked to gauge the health of a subdiscipline, but if there is any relationship between its objectives and output and gym classes. From the standpoint of direct communication with teachers, one can only conclude that gym classes are to motor learning research as bomb shelters are to "explosions."

To alleviate that situation sooner rather than later and yet continue to build a sound and relevant body of knowledge, I suggest the following for the subdiscipline: (1) continue to spearhead the drive toward accumulating as much knowledge as possible about the development of skilled movement behavior; (2) use more complex activity as well as simple responses to develop and verify models and theories; (3) revitalize the task oriented approach and combine it with the present process orientation approach; and (4) synthesize motor learning research for development of instructional theories and test learning and instruction theories in instructional settings.

Relationship between Subdisciplines

The skill acquisition process involves communication or interaction between the learner and the skill to be learned, as well as communication between a learner and a teacher and between the learner and other learners. In terms of task or skill analysis, biomechanics (or kinesiology) has a vital contribution to make. Through its many tools, biomechanics can analyze skilled performance and help us to know how mechanical principles are utilized in the process of moving to accomplish desired outcomes. Such analyses contribute to sorting out "style" and "form" based upon knowledge of the mechanical requisites for meeting task demands. It can help to set models of good performance, for example, as related to given force demands of a particular task. For the learner and teacher, this information can provide the basis for identification of performance goals and for relating product feedback to the movement process. Comparative analyses of good and poor performers also give a basis for observation and error correction by the teacher. It can provide information about stages in skill acquisition relative to expected final performance and can confirm or test theories of differentiation and hierarchical control. Through longitudinal studies using cinematography and electromyography, it can give us information about the effect of instruction on changes in performance over time. One of the important functions of the motor learning specialist concerned with application to teaching is to translate filmed and EMG observations into units meaningful to the learner.

Exercise physiology has important contributions to make to both task analysis and learner analysis; for example, in analysis of the physiological cost of different activities, the effect of environmental conditions on physiological states, the effect of stress and fatigue on learning and performance, and physiological characteristics related to age, sex, etc.

Areas of social psychology, as well as developmental and perceptual psychology, bring into the realm of motor learning psychological characteristics such as personality, attitude, motivation, etc. and the interactive relationship between psychological structure and skill acquisition. The authors of an addendum to the 1972 ***Research Quarterly*** devoted entirely to skill acquisition rightfully drew attention to the need to include social-psychological factors and growth and development factors which are pervasive elements of skill acquisition and performance (10). Considerable attention has been given to social-psychological and sociological analysis of sport and of skilled athletic performance. Examining these variables within the context of motor learning research is essential for developing more complete learning and teaching models which will be of potential use to the teacher.

Knowledge about the acquisition, retention and transfer of movement skills is directly relevant to the organization and sequencing of curricular experiences in the schools, in accordance with program objectives. It is also from the area of curriculum that motor learning specialists concerned with application to teaching can draw areas of needed research.

The area of philosophy is basic to all our endeavors whether they be research or teaching. Scientific research is value-free in that its methods must be objective and replicable. But theories of learning, as can be observed in the history of learning theory, are influenced by or reflect not only objective evidence but also philosophical assumptions about the nature of man and interaction with the environment. Note the current emphasis on information processing models rather than S-R models of motor learning today. The experimental and correlational approaches in psychology referred to earlier represent different philosophical streams.

The interpretation and use of skill acquisition research data and of theory is influenced by the values and objectives of physical educators. For example, studies of the influence of cognitive variables on skill acquisition give mixed results. Use of these data in teaching strategies will depend on the importance given to cognitive objectives within the skill learning process as well as to skill acquisition itself.

Schmidt (16) suggests that his schema theory lends support, however, inadvertantly, to methods used by movement educators for many years. What impact will such a finding have on physical education practices? And on what basis will there be acceptance or rejection of recent analyses of skill acquisition and implications for teaching strategies based upon Skinnerian behaviorism (4, 17)? And would we not find different models of skill acquisition and instructional models based upon Eastern philosophies rather than Western, as for example, the man-environment relationship expressed by advocates of "sport" as the subject matter of study?

Rationale for Relationships

The search for a rationale, or reasons, for relationship between and among the subdisciplines and basic physical education programs is not long or convoluted. The more difficult search is for implementation. All are involved with human movement experience and its many purposes, processes, forms and institutions. This subject matter forms the basis for a number of related continuums, with study of many aspects of the phenomenon at one end and application to many aspects at the other.

The term *many aspects of* at both ends of the continuum may be a key to an integrating rationale which speaks to two separate but related questions: (1) Will the "rings of gaseous matter" obscure and deny their origins and sever relationships with basic physical education? (2) Can they continue to exist and prosper within the field of physical education? The answers depend in part upon how one views the "mother nebula," defined for us by Alley as the basic programs of physical educacation. Or, to ask the question another way, why do children leave home? Some are at odds with parental values or even ashamed of them.

Some want freedom to grow and feel the need for more independence of thought and action. Some leave to make their fortune and to help their parents build a new, larger and better furnished home. Without overburdening the analogy, it is clear that some of the subdisciplines had reasons for detaching themselves from basic education, and others for maintaining a distant or close relationship. If all are to live in the same house, the "mother nebula" must welcome adding rooms to her one-room house and refurbishing the old furniture.

The past 10 years have seen a proliferation of subdisciplines; the designation by some that sport is the particular phenomenon they will study; the loss or decreasing influence of dance as it seeks affiliation and identity with art rather than with education; the increasing distance between the goals of subdisciplines directly related to school instructional programs and the practices in those programs. It has been said that in the evolution of a science, the healthy period reminds one of differentiation of structure and integration of function, as in organic development, and in the unhealthy period there is disassociation and faulty integration. The recent history of our field has been one of disassociation. A first step toward healthy development may simply be recognizing and accepting differentiation of structure and function; that is, accepting the increased scope and depth of our field without insisting that all efforts be directed toward basic physical education programs. From this recognition of diverse, yet related goals and applications may come closer association and new integrations.

Evidence of this already can be seen from the formation of the Alliance Research Consortium with representation from all branches; from national meetings bringing together specialists in motor development, motor learning and sport psychology; and from the interests of sport psychologists and sport sociologists in skill acquisition and in studying professional and basic physical education programs as institutions (8, 10).

As the vision of the scope of the field has enlarged, so can the scope, content and methodology of basic physical education programs. Although direct experience in the many forms of movement is, and should be, the principal education vehicle, additional avenues can be created for students to analyze, study and reflect on the role of movement in human life. For example, classes outside of the gymnasium, but within the "mother nebula" can introduce students to the world of the sport psychologist and movement aesthetician.

To strengthen the integration between the subdisciplines and "gym classes," however, more clearly differentiated intervening structures seem necessary. Ten years ago, in discussing future directions in physical education, I saw as basic to interdependence between discipline goals and education goals the organization for feedback between the two (19). I urged then that the space separating them not be a desert, but rather an oasis to which all would come to quench their thirst before continuing on their respective ways. It is clear now that the oasis must contain formally differentiated structures with integrating functions. Others in our field have spoken to this point quite eloquently (9, 11, 15). As Glaser said in supporting the need for a psychology of instruction, leaving the connection between theory and practice to individuals who might be interested is insufficient in this day and age.

We need a core of professionals qualified and interested in developing an applied science and art of human movement who would direct their research, scholarship and teaching efforts toward more immediate concerns of teaching and learning in school physical education programs. Membership in that core or intervening structure would represent expertise in the subdisciplines, in the science and art of teaching, and in the activities of basic physical education programs. They would be responsible for analyzing, testing and synthesizing knowledge bearing on curricular and teaching practice. Subdisciplines involved with the art and aesthetics of movement, and with the study of movement in more than its mechanical dimensions, are needed partners in this function.

The concept of a synthesizing agent can give rise to a variety of structures at institutional and professional organization levels and along a continuum from professional preparation to in-service education. Whatever form they take, their identity and purpose must be clearly established and rewarded. As our field continues to develop and grow, further differentiation, rather than disassociation, can be the source of new integrations. This can create a dialectic from which new forms and processes of physical education will emerge.

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REACTION TO SLOAN'S "A VIEWPOINT FROM MOTOR LEARNING-SKILL ACQUISITION"

Reuben B. Frost

Dr. Sloan's presentation, as I expected, is scholarly, thoughtful and thorough. There is much to be learned from it and I found little with which to quarrel. It includes a discussion of the nature and objectives of motor learning, its relationship to "gym classes," something about graduate research in this area, and a review of the relationships between subdisciplines. It concludes with two analogies, one of which compares basic physical education with a "mother nebula" and the offshoots of this body of rarified gas with the children who sometimes leave home (the children being the subdisciplines which have been trying to find breathing space and encouragement to develop under the umbrella of physical education).

The other analogy is the one with which I shall begin my reaction. Toward the end of her article, Sloan says:

> Ten years ago...I saw as basic to interdependence between discipline goals and education goals the organization for feedback between the two. I urged then that the space separating them not be a desert, but rather an oasis to which all would come to quench their thirst before continuing on their respective ways.

I, too, like the analogy and think it is expressed rather poetically. More important, it caused me to ask myself some questions. Why don't the coaches, dance teachers, elementary physical education teachers, college professors and others in this broad "octopus-like" profession drink out of a common stream? Is the water unpalatable to some but not to others? Are the contents so complex that one needs a special digestive apparatus to assimilate them? Are the differences so real that different diets are necessary?

Perhaps the following excerpts from the article, "The Civil Tongue of Edwin Newman," have meaning for us.

> Newman is equally discomfitted by professional double-talk. "Experts in certain fields—the fine arts, law, philosophy—are using language to suggest that what they're saying is far more complex and difficult than what it is. They make it next to impossible to understand what's being said." "I realize this could go on forever," he says, "but, this is from San Diego, a task force report on nursing home care. 'It is hoped that the recommendations made are reality-oriented, and that their implementation is possible to achieve....'
>
> "Which means, simply, 'We hope this can be done.'" Newman leans back in his swivel chair, unable to continue. (1)

Do we, when writing or speaking about the learning of skills, couch our statements in language so difficult to understand that the coaches and physical education teachers do not find it worth the time and effort it takes to decipher it? Or—do we in our professional preparation programs limit the substance of the courses and/or lower the standards to the point that the "practitioners" cannot understand even well-written articles? Or is the best answer to our dilemma found in Sloan's article where she says:

> We need a core of professionals qualified and interested in developing an applied science and art of human movement who would direct their research, scholarship and teaching efforts toward more immediate concerns of teaching and learning in school physical education programs. Membership in that core or intervening structure would represent expertise in the subdisciplines, in the science and art of teaching, and in the activities of basic physical education programs. They would be responsible for analyzing, testing and synthesizing knowledge bearing on curricular and teaching practice. Subdisciplines involved with the art and aesthetics of movement, and with the study of movement in more than its mechanical dimensions, are needed partners in this function.

While most of Sloan's article is quite straightforward, I will confess that I read the following three sentences several times before I felt satisfied that I had grasped their full meaning.

> In a global sense, I would describe the study of motor learning as being concerned with the evolution of skilled movement behavior. The term *evolution* is used deliberately in the sense of the development of skilled performance through the process of increasing differentiation and hierarchic integration and control of movement. We see this process in the developing movement repertoire of the very young and in the processes involved in the acquisition of more specific, complex, and highly organized movement skills.

I am not sure whether this should be classified as "jargon" but I have been wondering if it could have been said more simply. Would it be more effective to say: "Motor learning consists of the development of skill in movement. It includes increasing the repertoire of skills in the very young and developing more specific, complex and highly organized movement patterns"? Now I am not sure that it is entirely fair to take a few sentences out of context and suggest the criticism that is implied here. However, I have often felt, in reading material on motor learning and psychology, that too much jargon is used.

Because Sloan's paper *is* of high quality and has suggested many ways in which motor learning-skill acquisition is important to coaches and physical education teachers, I should like to spend my remaining time presenting a list of items which I have found valuable or which I feel would be helpful if I returned to coaching and the teaching of activity courses.

1. Those working with the very young and/or with the handicapped should know that nervous integration is both pre-natal and post-natal and that much of it occurs as a *response to movement.* Whether we accept the theory of *neurobiotaxis* (the movement of nerve cells toward the point of stimulation) or not, it is important to realize that children "move to learn" as well as "learn to move."

2. All who are in the business of assisting individuals to acquire physical activity skills should understand that there are two basic components in voluntary movements—perception and the motor act. Inability to learn and to perform may be due to impairment of either the perceptual apparatus or the body's motor equipment—sometimes both.

3. Teachers and coaches should be knowledgeable in the area of operant psychology. The fact that various kinds of behavior can be strengthened or weakened on the basis of their consequences is important for both learning and performance.

4. An understanding of the phenomenological approach is also essential. Each person becomes aware of himself and operates in his own total environment and private world. Facts and events become real as they are relevant in the circumstances in which individuals perceive themselves.

5. Learning is intimately related to motivation. A *central motive state*, wherein an individual believes that prolonged and determined efforts are worthwhile, is necessary if one is to learn difficult tasks. Appropriate arousal, superimposed on such a central motive state, often produces outstanding performances.

6. Feedback, both in the narrow and the broad sense, is essential in motor learning and performance. Guidance from proprioceptors and exteroceptors plays an important role in all motor behavior. Assuring that students are provided "knowledge of results" is part and parcel of good teaching.

7. Knowing when "whole teaching" and "part teaching" will be the most helpful and using methods appropriate to the situation are characteristic of the successful teacher and coach.

8. A knowledge of (a) the most effective distribution and the optimal length of practice, (b) the intelligent employment of mental rehearsal, (c) the productive utilization of audiovisual materials, and (d) the use of appropriate manual guidance in difficult movements, are essential as one teaches or coaches at higher levels of skill learning.

9. The combining of basic movements into motor patterns and the automation of these so that they may be called out by the correct combination of cues are processes which should be understood by coaches. Practicing voluntary movements until they become involuntary is an essential part of a high-level athelete's preparation.

10. All aspects of body mechanics are key bits of knowledge to the learner and to the performer who really wants to improve. The basic principles of kinesiology should be mastered by the coach and the high-level performer.

11. Motor learning is affected by fatigue, organic impairment, disease and other defects in the physiological mechanisms operating within the organism. A basic knowledge of exercise physiology is one of the attributes of the great teacher or coach.

12. Finally, a coach and/or physical education teacher must understand the reciprocal relationships between all dimensions of the human organism—physical, intellectual, social, spiritual. There is interaction between all aspects of the individual—cognitive, affective and psychomotor. The great coach, the master teacher will give attention to the needs of the total person. As a program or a lesson is geared to bring about change in one dimension, the effect on other dimensions will also be considered. The teachable moment may reveal a physical, intellectual, psychological or social need.

These, then, are some of the thoughts elicited by reading Sloan's article. I agree that a partial solution to our dilemma may lie in differentiation rather than in dissociation. Let each specialist develop expertise in his/her speciality. At the same time there should be closer association between the theoreticians and the practitioners. Coaches and teachers will benefit from mastering the theoretical aspects of motor learning. If this is going to occur, however, there must be greater effort to write research articles and scientific expositions in language which not only can be understood, but even enjoyed. There must also be increased emphasis on preparing our future teachers and coaches to read professional articles with understanding.

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A SEARCH FOR RELATIONSHIPS—SOCIOLOGICAL AND SOCIAL-PSYCHOLOGICAL CONSIDERATIONS

Jan Broekhoff

The theme of this meeting, to relate the various subdisciplines orbiting around physical education to each other and to the more mundane, practical aspects of the profession, presents speakers and participants with a veritable challenge. In the past 15 years much has been said and written about physical education as an academic discipline, but it is very evident that these cogitations did not resolve the fundamental differences between disciplinary knowledge and practical know-how, between academic theorists and professional teachers. Alley's metaphor of physical education as a "mother nebula" and the subdisciplines as "rings of gaseous matter" remind me of a story by comedian Bill Cosby dating to the time when he was a physical education major at Temple University. One night, his girlfriend who was studying philosophy paced the room asking "Why is there air? Why is there air?" Cosby answered, "Any P.E. major can tell you that. Air is there to pump up basketballs!"

Since physical education majors are not likely to study the Pre-Socratic philosophers, they are not apt to lose their metaphysical innocence about air. And who is to say that here ignorance isn't bliss? That does not mean that physical education students remain naively pragmatic for a long time. As they become initiated into the physiological aspects of their discipline they get to know about expired air, inspired air, residual air, alveolar air, oxygen debt, aerobic capacity and Max. $\dot{V}O_2$, to mention only a few air-related topics. At the same time, they gain knowledge from other theoretical subfields that may or may not be meaningfully related to the teaching they have to do in the schools. Much of the theory may originally have been derived from the practical concerns of "gym" teachers. Just as certain, however, much of it will have divorced itself from practical considerations to become an end in itself. In any case, most undergraduate students in physical education will catch at least a glimpse of a bewildering array of specialized knowledge under the more or less familiar labels of the subdisciplines.

The search for knowledge as an end in itself has the obvious advantage that philosophers, historians and scientists can explore problems that are not limited by narrow, practical perspectives. As a result, novel and exciting areas of inquiry may lead to unexpected discoveries that broaden man's mind and his culture. Perhaps it is in this sense of free inquiry that we talk about a truly academic discipline. In think that it was in this spirit that Franklin Henry described an academic discipline in the context of physical education as

> ...an organized body of knowledge collectively embraced in a formal course of learning. The acquisition of such knowledge is assumed to be an adequate and worthy objective as such, without any demonstration or requirement of practical application. The content is theoretical and scholarly as distinguished from technical and professional. (7)

Although I have strong feelings about the worth of an academic discipline, I detect several serious problems in applying the concept to physical education. First of all, very few physical education students will teach knowledge obtained in a formal course of learning in the way that chemistry students will later teach chemistry and math students will later teach mathematics. One might object that it is more appropriate to compare the physical educator to the biochemist who applies knowledge of biochemistry to find drugs against certain diseases or a civil engineer who applies knowledge of mathematics and physics to build bridges. The difficulty with physical education is that it draws upon a wide variety of knowledge from the natural and behavioral sciences as well as the humanities. Physical education is not simply applied physiology and anatomy, applied motor learning and biomechanics, or an applied behavioral science. It is just not realistic to ask physical education students to embrace widely divergent sources of knowledge in a formal course of learning without requirement of practical application and then expect them somehow to integrate this knowledge and apply it to the teaching situation.

Pelicans, Omelettes and Pedagogical Intentions

The difficulties in integrating knowledge at the practical level are very much related to a second problem which pertains to the unity of the academic discipline of physical education itself. The coherence and unity of an academic discipline usually result from a well-defined focus of attention and a particular mode of inquiry (8). For physical education, the focus of attention has frequently been identified as human movement. It has become apparent, though, that the term ***human movement*** is too vague and general to serve as a unifying concept in an academic discipline of physical education. Although, in an idiosyncratic way, both are concerned with human movement, there appears to be little in common between the physiologist of exercise studying the mechanism of glycogen supercompensation in the gastrocnemius muscle of the frog and the philosopher of sport meditating on the phenomenology of space and time in rope-pulling contests. One could make a good argument that many of the subdisciplines in physical education in effect belong to other "mother nebulae"; that exercise physiology is a specialty within physiology and sport sociology a "gaseous cloud" within sociology. It goes without saying that, to many, such fields are galaxies apart!

The rapid development of theoretical subdomains in physical education has been accompanied by a flurry of national and international societies, associations and organizations. It is no secret that the multiplication rate of learned societies is among the fastest of social institutions. The following poem by Robert Desnos indicates the need for a thoughtful evaluation of the present state of affairs.

> One day young captain Jonathan
> he was eighteen at the time
> Captured a Pelican
> On an island in the Far East.
> In the morning,
> This Pelican
> Of Jonathan's,
> Laid a white egg
> and out of it came
> A Pelican
> Astonishingly like the first.
> And this second Pelican
> laid in its turn
> A white egg,
> From which came inevitably
> Another
> who did the same again,
> This sort of thing can go on
> A very long time,
> if you don't make an omelette. (5)

I should like to make a modest contribution toward the omelette by looking at some of the sociological and social-psychological dimensions of physical education. To do so, however, I feel that we need to ask ourselves first what physical education stands for and especially what physical education teachers try to accomplish in the practical situation. I am going to limit my remarks to physical education in the schools, to what I like to call a pedagogical situation. This does not mean that physical education could not be extended to pedagogical situations outside the schools and, for that matter, to adults of all ages. Western European literature in the latter case would refer to andragogical or simply "agogical" situations.

In a limited sense, then, I see the task of physical educators as the guiding of children and youth toward adulthood through vigorous physical activities. "Gym" teachers give exercises, conduct games and teach children how to play and dance with certain purposes in mind. Initially, these purposes could be called pedagogical intentions; in their final form they are usually labeled "objectives." For the teacher, the physical activities are nearly always means toward one or more ends. This does not mean that the students themselves cannot be wrapped up in them. It is entirely possible for educators to realize their intentions without revealing them to the children. In this context, it is very important that physical educators be free to change the pedagogical situation, to adapt the activities to meet educational objectives. Here lies one of the main reasons why sport cannot be equated with physical education. The pedagogical potential of sport is limited in direct proportion to its structural rigidity as a social institution.

Educational intentions reflect the discrepancy between a perception of a situation "as it is" and a perception of what it "ought to be." Educators, and therefore physical educators, are agents of change; they are ameliorators who want to change a situation for the better. To achieve their goals they need knowledge and I can see at least three ways in which physical educators could benefit from supportive domains of inquiry.

First, pedagogical intentions and educational objectives mirror the values of a particular society. The study of educational philosophy and the philosophy of physical education may help to clarify these values. Since objectives do not exist in an historical vacuum, the history of physical education should provide an important perspective. As I hope to show later, the sociology of knowledge can shed an interesting light on certain physical education objectives as well. Second, before physical educators can effect change, they need an accurate assessment of the existing situation that is value free and not influenced by pedagogical intentions. The measurement of initial levels of physical fitness, for example, should not be biased by the desire to improve fitness. Depending upon the kind of objective, physical educators should have the support of a number of existing subdisciplines to obtain an accurate picture of "what is." The third way in which the practitioner needs the help of the subdisciplines is in the evaluation of change. Once the educator has selected a method to reach a goal, the effectiveness of this method needs to be assessed. Here again the evaluation should be value free and independent of the normative aspects of educational practice.

Strength, Once of Significance

I shall now attempt to show how sociological and social-psychological knowledge can be of value to physical educators in coming to terms with their educational goals. The fact that I do not draw extensively from the existing subdisciplines of the sociology and psychology of sport should not imply that these fields have little to offer to the theory and practice of physical education. I also wish to make it clear that my excursus into the social sciences is not meant to create another Pelican. Physical education theorists have given far too little attention to problems that are directly or indirectly related to the practical situation. It is high time we start concentrating on making an omelette.

To look at the objectives of physical education from the perspective of a sociology of knowledge entails explanations that relate theory and practice in the field to more comprehensive social structures. As Berger and Luckmann (1) indicate, sociology of knowledge can be seen as an intermediate step between the self-evidence of knowledge in everyday life and epistemological analysis. As such, they consider it to be part of the empirical discipline of sociology. In this connection, an article by John H. Gagnon (6) exploring the social and historical significance of physical strength is of interest. Gagnon's main thesis is that physical strength, which once was highly significant in the social organization of men into hierarchies and in distinguishing between men and women, has lost its significance in this respect. He identifies several responses to this changing role of strength, two of which are particularly important to physical education. One of these, Gagnon calls "the cosmetic response" in which jogging, isometric exercises and certain individual sports serve to maintain youthfulness and physical attractiveness. Physical strength thus becomes an aspect of physical beauty, ". . .a secondary sex characteristic, retaining this significance without having any functional importance." For a large portion of the working and lower economic class male population, on the other hand, manliness and physical prowess are still intertwined. These males, according to Gagnon, fight a rear-guard action against the declining importance of physical strength. They hold traditional views of gender roles and usually are ardent sport fans. Sport itself can be viewed as an atavistic ritual in which physical prowess still separates the men from the boys. Since there is hardly a substitute for strength in the differentiation of the genders, Gagnon foresees continued resistance against changes in this area.

If Gagnon's description can be considered as an accurate analysis of the function of physical strength in society, some intriguing questions emerge about the function of physical education. Do physical educators, who traditionally put a high premium on physical prowess and physical fitness, indeed belong to a cultural and social rear guard of our society? Does the typical physical education program perpetuate traditional gender roles through subtle differences in the socialization of boys and girls with respect to physical activities? It is interesting to note that in recent years there has been an increasing tendency among physical educators to return to the intrinsic values of play, sports and dance. At the same time there is a call for humanistic practices within the profession. Are these developments signs that the structure of physical education is in the process of adjusting to societal changes? At this point there should be a caution against judging educational objectives exclusively by sociological criteria. Physical strength may retain much of its validity as a sound objective from biological and psychological developmental points of view. Gagnon himself observes that especially among boys physical prowess is highly valued and that "in the child's world strength still retains some of its historical significance."

The social construction of reality, to borrow a phrase from Berger and Luckmann, leaves physical educators with many dilemmas. In my research with children from Toledo, Ohio, I found that girls in the upper grades of elementary school showed a significant tendency to underestimate their physical strength and jumping ability when they compared themselves to all members of their class. The boys in these grades consistently overestimated their abilities (2). From a social-psychological view these inaccurate self-perceptions could very well be explained as a functional adjustment to gender role expectations. Teachers with a traditional concept of sex roles might let the situation rest here. Other physical educators, however, may feel strongly that elementary school children should have an accurate idea about their physical capabilities, regardless of sex. For them the next question would be how does one go about changing these misconceptions. This is a perfect example of a situation in which a pedagogical intention reveals the discrepancy between "what is" and "what ought to be." In such cases, the physical educator becomes a conscious agent of social change.

Play Education and the "Hidden Curriculum"

Traditionally, introductory textbooks list social and emotional development or adjustment as desirable objectives of physical education. In practice, these objectives often receive little more than lip service. Many teachers will claim that about all one can expect from them is that they reach some of the primary goals in the areas of physical fitness and motor skills. Frequently, the social and emotional adjustments of children are seen as incidental outcomes of physical education programs.

Similar attitudes can be observed in the world of sport where development of character and good social relationships are perceived as natural and self-evident outcomes of competition. Those who emphasize the intrinsic values of physical activity may shun social and emotional objectives because they are against using physical activity in a means-end relationship. Daryl Siedentop (14), for example, maintains that physical education should be "play education" and he dissassociates himself from the utilitarian approach of education-through-the-physical. Ironically, in his theory, social objectives enter through the back door in the form of "socialization into the play environment." Siedentop makes it a point that social behaviors such as "civility in the play environment" must be taught "just as surely as one teaches a change-of-direction dribble or a top-spin serve." It is hard for me to conceive that Siedentop would be happiest if "civility" remained a behavior intrinsically linked to and reserved for the play situation.

Some of the most radical educators object to any kind of socialization through the schools because this would force children to behave according to inhibiting and constraining social models and because it involves the sensitization of children at a subconscious level and, therefore, takes away their autonomy. Kathryn Morgan (12), however, in an article about the open education movement, demonstrates convincingly that these radical educators are very much involved in socialization processes albeit for a social structure which is largely visionary at present. She further points out that open educators are probably more successful as socializers than traditional teachers because of their emphasis on affective, personal relationships with their students. Consciously or subconsciously educators shape the behavior of children and behind every educational program there is most likely a "hidden curriculum." It makes eminent sense, then, that physical educators should gain an awareness of socialization processes and not leave the social and emotional development of children to chance.

In an informative overview of the role of games in psychosocial development, Loy and Ingham (9) stress the need for a planned approach toward educational goals, stating:

> It is suggested that if physical educators seriously wish to pursue educational objectives (especially those related to social development) through physical activity, then they must attempt to operationalize their particular educational aims and explicitly design, develop, and conduct innovative games and sports which are likely to aid the student in attaining these specific goals.

This conscious use of physical activity to reach educational goals stands once more in contrast to the intrinsic motivations of sports or "play education." Inherent in the two approaches are structural differences which merit some further attention.

The anthropologist Stephen Miller (11) suggests that play is a context in which the chief mode of behavior is the elaboration of means rather than the marshalling of means toward certain ends. This is not to say that there are no goals in play, but these goals are more important as preconditions for the exploration of means than as ends in themselves. In a primitive sense, play is "galumphing," a rather clumsy way of moving about, in which the efficiency of the straight line is abandoned for the delight in movement itself. Since play involves flexible combinations of activities that normally would not go together, there is the possibility of producing novel situations which Miller sees as an important skill for survival.

Within this frame of reference, Polgar (13) contrasted teacher-supervised play with free play behavior in school yards of groups of sixth grade boys. She observed many differences which seemed to be a function of the different roles of the peer group and the adult in the socialization of children. In their peer groups, the children were not highly concerned with ends. The games chosen were of a lesser specialization of rules and roles; they arose spontaneously and allowed considerable elaboration of means by rule variation, particularizing relationships, and encouraging novelty. In the classroom, the physical education teachers consistently applied arbitrary, externally imposed rules. The teachers would often allow only one correct way of playing and an inordinate amount of time was spent in the organization of the games. Without making value judgments about ends-related learning situations in education, Polgar raises the question whether play can still be called play in the physical education classroom.

There is little doubt that physical educators profoundly alter the structure of play and games. I should even venture that it is their job to do so. The lesson to be learned is that "galumphing" succeeds best with a minimum of intervention from adults. If, as Miller seems to think, "galumphing" is the essence of play, "play educators" find themselves on the horns of a dilemma. By teaching children how to play, they run a large risk of destroying the intrinsic meanings of play at which they aim. By leaving children alone, they would find themselves out of a job!

The structure of a physical education class as a social environment is determined by many variables. Physical educators should become aware of these variables and the fact that social development is not something that takes care of itself. One of the most discouraging findings in my own research was that groups of boys and girls who were highly unpopular at the end of the fourth grade remained just as unpopular at the end of the seventh grade. Compared to their peers, these children were in poor physical shape and had very low motor skills throughout the upper elementary school period. It is obvious that many of these children with low social status need extra help from physical educators. Yet, in the highly competitive environment of the "gym" and the playing fields, they are often the first to be sidelined (3, 4).

Children with low social status form but one reason for the need of a social-psychology of physical activity. Martens (10), in a monograph of that title, surveys many relevant areas such as social facilitation, social reinforcement, aggression, attitudes, and socialization. His approach to social psychology relates it closely to topics in the psychology of sport and motor learning. Personally, I have gained much insight from the research and writings of symbolic inter-actionists elaborating on the seminal ideas of Charles Horton Cooley, George Herbert Mead and others. I see many applications to physical education in their theories on the development of self. The self in social interaction would seem to be particularly appropriate to those teachers who want to stress humanistic values in the gymnasium.

Integration of Knowledge in Physical Education

Important as it is, the social dimension of physical education is only one aspect among many others. Perhaps it deserved the extra attention given to it because it has so often been taken for granted. By now, it must be fairly apparent that to me the integration of the various aspects of physical education can only be achieved in relation to pedagogical intentions and educational objectives. The history and philosophy of physical education, the sociology of knowledge, but also functional biological and psychological insights are important for value clarification with respect to aims, objectives and intentions. Only an integration of these various points of view can lead to sound pedagogical intentions and educational objectives working toward the more comprehensive aims of general education.

A further integration of knowledge will occur when physical educators ask questions about "what is" in relation to what they think "ought to be." The most important questions here are in the form of "what do we know about the physical, motor, emotional, social, and moral development of boys and girls?" Such queries point to the need for integrated knowledge about children of a developmental nature. Since physical educators deal with growing children, they will be aided most by integrated information derived from developmental anatomy, physiology of exercise, motor learning, social-psychology, and biomechanics. Often the subdisciplines of physical education show more interest in adult, than in developing, organisms. Questions of a developmental nature can also be asked about exceptional children, thus leading to special areas within physical education.

Finally, with respect to the courses of action physical educators take, knowledge from the various subdisciplines needs to be applied to test the effectiveness of programs and methodologies. Once again, this will entail an integration of knowledge because no single point of view should determine a particular course of action. Depending upon a teacher's intentions, the exercise most effective from a physiological or anatomical point of view may be totally unacceptable for social or psychological reasons. Such considerations point to the important role of teacher-researchers employing a team-approach toward solving problems arising from the practical situation.

Undergraduate students in physical education should have a wide exposure to learning experiences in which they acquire knowledge integrated at various levels in relation to the practical concerns of the profession. They should gain a thorough understanding of the aims of physical education and the options they have with respect to pedagogical intentions and educational objectives. After course work in traditional areas such as physiology of exercise, anatomy and motor learning, they should turn to multidisciplinary seminars in which they get to know about children and youth. These seminars should be team-taught and involve frequent contact with the children themselves. This multidisciplinary approach should then be carried through in courses involved with the didactics and methodology of physical education.

Graduate programs in physical education should encourage the development of teacher-researchers with an interest in applying knowledge from one or more subdisciplines to problems in the areas of pedagogical intentions and developmental and didactic-methodological considerations. Such persons would form an important link between what goes on in the highly specialized departments of the subdisciplines and the practical situation where knowledge has to be translated into know-how.

I should like to end with a final observation about the specialists in the subdisciplines who have long since divorced themselves from the practical concerns of the mortals who work in the gymnasia. After giving the matter considerable thought I have come to the conclusion that these people are the true players. They revel in the elaboration of means, and goals are only important to them inasmuch as these allow them to keep on "galumphing." I count most of my friends among them and I shall defend to death their right to galumph. In large measure, it may be their kind of play that will prevent physical education from developing narrow stereotypes. As Schiller remarked quite some time ago, "...man only plays when in the full meaning of the word he is a man, and he is only completely a man when he plays." I for one shall hate to see the day in which a subdiscipline ventures too far from the "mother nebula" and dissolves into hot air!

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REACTION TO BROEKHOFF'S PAPER "SOCIOLOGICAL AND SOCIAL-PSYCHOLOGICAL CONSIDERATIONS"

Raymond A. Weiss

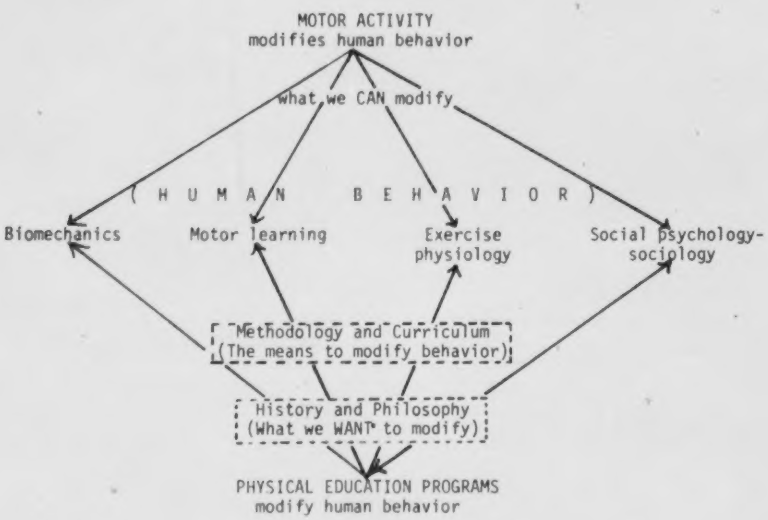
In reacting to Dr. Broekhoff's paper on sociological and social-psychological considerations, I would also like to react to Dr. Alley's paper since it helped structure Broekhoff's paper.

You may recall that in Alley's structural model describing the current situation in physical education he likened the situation to a whirling nebula which threw off rings of gaseous matter that formed around the "mother" nebula. I feel a bit uncomfortable about the analogy to gaseous things; upon occasion my students have been known to allude to my remarks in class as gaseous. Webster didn't make me feel any better with the definition of gaseous as "empty talk" and "to talk nonsense or falsehood." However, that didn't bother me as much as the reference to "mother" nebula. According to Webster, the adjective form of nebula is nebular, and Webster refers to the nebular hypothesis as involving a mass of nebulous matter. Webster goes on to define nebulous as "hazy, vague, indistinct, or confused." I simply refused to allow my mind to carry the analogy any further. I didn't want to associate Alley's structural illustration of relationships in physical education with anything gaseous or nebulous. I think I felt threatened by the possibility of an element of truth in the association.

However, I had to decide whether I could accept Alley's structure of relationships in physical education. As a starting point, I wanted to be sure I understood the language of our field, so I dutifully looked through many of the references on the topics listed in Alley's model. I had no trouble with such terms as biomechanics, motor learning, skill acquisition, exercise physiology, and the other satellites in the model. However, it was mind boggling to read all the different definitions of physical education. But there was no stopping now. I was committed to accept some definition of physical education or admit defeat and not finish this reaction paper. Unthinkable! The solution flashed into my mind. I would use my own definition—a definition that has something to say about the role of scientists such as august members of the Academy, but at the same time has something to say about the role of teachers such as myself. *Definition of physical education:* The study of ways in which motor activity can be used to modify human behavior and the conduct of programs to cause such modifications.

My first reaction was that Alley's model would not fit this definition. Since I was reluctant to change the definition, the alternative was to change the model. The new model would have to accommodate the three concepts in the definition—motor activity, human behavior, programs. It seemed somewhat obvious that two of these concepts act upon the third; that is, motor activity and programs act upon human behavior. But there was still the matter of how to show the relationships among the three concepts. A cue comes from the abstractness-concreteness trait in motor activity and programs. On the continuum of an abstractness-concreteness dimension, motor activity and programs are poles apart. Motor activity is real; you can see it and recognize it for what it is. Motor activity is a child skipping, a woman swimming, a man lifting weights. There's nothing abstract about any of these activities. You recognize them for what they are. On the other hand, a program is an idea developed to explain something abstract, and when you look at something called a program, you give it a label, such as physical education, while someone else may give the same program a different label, such as recreation. For example, one day I came late to a meeting at which a videotape was being shown of an adult working with a child who was engaged in what was clearly and concretely a motor activity. I watched the remainder of the showing, convinced I was watching a portion of a physical education program. When the lights came on I discovered that the presenter was a dance therapist showing a videotape of herself providing a child with dance therapy. Furthermore, she bristled slightly when I innocently commented that what we saw looked very much like physical education.

Yes, I am convinced that motor activity and program are poles apart; yet they both are used to change human behavior. That sort of puts human behavior in the middle, and that's the way I would translate my definition of physical education into a structural model, as shown below.


MOTOR ACTIVITY
modifies human behavior
what we CAN modify
(HUMAN BEHAVIOR)
Biomechanics
Motor learning
Exercise physiology
Social psychology-sociology
Methodology and Curriculum
(The means to modify behavior)
History and Philosophy
(What we WANT to modify)
PHYSICAL EDUCATION PROGRAMS
modify human behavior

Structural Model of Relationships in Physical Education.

The rest of my remarks go directly to Dr. Broekhoff's paper. As a scientist, Broekhoff comments that he has strong feelings about the worth of an academic discipline. As a teacher, I too have strong feelings about the worth of an academic discipline—so much so that the upper half of the structural model I prepared represents the role of the disciplines in determining the worth of motor activity. The scientist tells us what motor activity *can* do. My career as a teacher is on the line in these days of lean budgets where survival of the profession may depend upon what motor activity can do. Every time science forges a stronger link between motor activity and medical health, I utter thanks to the scientists who are clarifying the role of motor activity.

Dr. Broekhoff writes about objectives as mirrors of the values of a particular society. The implication here is that while motor activity can be used in many ways to achieve a variety of objectives, some objectives may be more relevant to society than others. His example of physical strength is excellent in that it shows how changing values of society can elevate a particular objective to a pinnacle or reduce the same objective to a level of unimportance. Who would have thought 30 years ago when strength and other fitness components were riding high on the crest of priorities because of the demands of a worldwide war, that 30 years later that very same element of strength would be in danger of falling into disrepute because the gender roles with which strength is associated are being attacked? As a teacher, I had better stay in tune with the times or I'll lose my audience, especially now when physical education is becoming increasingly elective.

The matter of priorities in physical education objectives is reflected in the lower half of the structural model I prepared. The model shows that history and philosophy give direction to the physical education program, making some behaviors more important than others. It also shows that methodology and curriculum are means used to modify behaviors.

Broekhoff's reference to strength and gender roles helps us realize that the pathway between program and behavior can be a two-way street. On the one hand physical education can modify social behavior, and on the other hand social behavior can modify physical education. Notice the arrow heads at both ends of the line connecting social psychology-sociology and physical education in the model.

As a teacher, I like the idea in my model of the separation between what physical education can do and what it ought to be doing. I *know* physical education programs can be used to increase physical fitness, but I am not at all convinced that I should be spending as much time in class as it would take to raise fitness to the high levels which some programs have achieved. I would rather teach my students about fitness exercise programs and give them the incentive to develop fitness outside the regular class, allowing more time to teach motor and sport skills. Society is less enamoured of the work ethic than before, and leisure appears to be a concept whose time has come. Tennis, paddle ball and golf are some of the activities that are "in" and I had better get the message or I'll be up on the carpet trying to explain to irate parents and school administrators why I'm still teaching the *old* physical education.

Summarizing, as a teacher I've got to be on my toes, which means I should:

1. know what motor activities *can* do to change behavior
2. make wise choices about *priorities* in planning the physical education program
3. be aware of changing cultural norms and their implications for teaching physical education.

Dr. Broekhoff's paper could help me stay on my toes.

RELATIONSHIPS IN PHYSICAL EDUCATION: A VIEW FROM EXERCISE PHYSIOLOGY

Perry B. Johnson

"We are the two halves of a pair of scissors, when apart, Pecksniff, but *together we are something*." Charles Dickens, *The Old Curiosity Shop*

I have taken the liberty to assume that the aim of this year's Academy program planners is to stimulate the emergence of a *together*, rather than a disjointed, profession toward the ultimate end that basic physical education might be improved. Such an aim is admirable and lofty and, in the minds of some, unattainable as well! Implicit in the theme of these meetings are two premises: 1) there is some dissatisfaction with what basic physical education *is*, and 2) the independent nature of the various so-called subdisciplines is either responsible for this state and/or that a strong working relationship among them holds some real hope for improving the situation. To describe these relationships, as challenging and complex as such a description may be, is hardly the most difficult task before us. To describe them in such a manner as to break through the many ego-involved personal biases so tenaciously and defensively clung to by so many of us is a monumental chore.

I can do no more (nor could I do less) than to lay carefully before you my considered perception of what *ought* to be in contrast with what *is*. I implore your careful consideration of these perceptions before making a conscious, objective decision as to what to discard and what to accept.

While musing and nodding my head in disbelief that we are as a professional group considering what should be so obvious, I was struck by the relationship of this theme to several themes in the recent past: "Accountability, Relevance, and Involvement"; "Shall We Change the Designation Physical Education?"; "Shall We Support the Concept of the Development of a National Curriculum Model?" All of these themes relate, in one fashion or another, to what goes on in the name of basic physical education. Ben Franklin may not have given much thought to basic physical education in *Poor Richard's Almanac*; nonetheless he left us with a meaty principle to keep in mind when we take a serious look at our basic programs: "It is hard for an empty sack to stand upright." I do see our sack ("bag" if you prefer) as being at least partially full rather than empty and, in all fairness, in some places the sacks are overflowing while in other places they are at least fuller than they were. Yet our collective sack is in general not standing upright because it is relatively empty; it is large enough and we must fill it. Perhaps we *can* provide a stimulus that will lead to the filling of our sack; such an effort is a worthy aim.

With this aim in mind, I will address myself, from the viewpoint of an exercise physiologist, to the questions posed by Dr. Alley and his planning committee. But before responding to these questions, lest my perceptions be misconstrued and therefore any subsequent debates by us rendered ambiguous, I wish to identify the basic working definitions essential to any rational discussions of these questions. My working definitions may differ from yours or from more traditional ones, but I can work only from those in which I believe. I hope that you will be able to separate any quarrels you have with my specific proposals from quarrels more precisely associated with my underlying working definitions.

Physical education, by whatever name we do or ought to call it, is first a *discipline,* that is to say, a "specific branch of learning" and, second, by intent and by focus, a *profession*; it is a "vocation requiring knowledge of some specific discipline." It is, therefore, both *the study and educational application of concepts and principles of the motor, cognitive, affective and social dimensions of and related to human physical activity, be it work, sport or play, be it for typical or atypical persons.* It is clear what is meant—physical education *should* be the study and practical application of all that is known and all that can be learned about every aspect of the physical activity of both play and work for every person, whatever his or her physical abilities and limitations.

A *discipline* is any branch of learning; thus any unified and systematic effort to extend knowledge beyond that contrived out of a sharing of ignorance can rightfully be called a discipline. In a similar vein, any truly learned person with profound knowledge of a specific discipline attained by systematic study can rightfully be called a *scholar.* I shall use these four terms as I have defined them throughout the paper: physical education, profession, discipline and scholar.

What are the Nature and the Objectives of the Subdiscipline Exercise Physiology?

Exercise physiology is a science, that is, a branch of study and knowledge dealing with facts gained and being gained by systematic study. It concerns itself with the functions of the living organism during and as a result of physical exercise. Its primary objective is to study, discover and explain: (1) the physiological responses of the body to exercise, and (2) the physiological adaptations resulting from regular exercise. Often this objective is motivated by an interest in how these discoveries and explanations relate to and can improve physical performance and health, or how they relate to safety while engaging in the physical exercise of work or play.

What Is the Relationship of Exercise Physiology to the Other Subdisciplines?

Before describing the relationship of exercise physiology to the other sudisciplines, I am compelled to comment upon the nature of our subdisciplines. In keeping with my definitions, physical education *is* in part a *discipline* composed of various subdisciplines. I see potential new subdisciplines waiting to be made viable and professionally acceptable by those who might be willing to make them so by means of their unified, systematic search for knowledge, using the proper scholarly tools of inquiry and hypothesis testing. Thus, I believe curriculum, methods and game-sports-activities could become subdisciplines in the fullest sense of the word. In regard to the subdisciplines as classified by our planning committee, I would be more comfortable with a few slight modifications. First, I believe we might logically separate psychology from the sociology of physical activity, but since they both are basic ingredients of the affective domain made up essentially of cognitive behavior and related emotions, whether individual or collective, I can be comfortable in this presentation with their marriage. Second, growth and development (including geriatrics) *must* be included, if not as a separate subdicipline, then as one fundamental consideration within several appropriate subdisciplines; the same is true for measurement and evaluation. My assumption is that each of the life science subdisciplines subsumes within its particular focus growth and development as well as measurement and evaluation of the phenomena involved. Third, I must think of history and philosophy as separate subdisciplines. Fourth, I must also add two subdisciplines: (1) remedial-adaptive physical activity (by whatever name you prefer) because I don't feel the individual subdisciplines can give the attention to this area that it needs; and (2) games, sports and activities. The latter, I fear, was not identified as a subdiscipline for an obvious yet lamentable reason: it is considered to be what basic physical education is. And though this is historically all too true and though it may be true that such activity is the means as well as a major component of what we ought to be doing, it certainly is not, and should cease to be what basic physical education is. Therefore, I submit that we should have scholars providing input to

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the basic program from a subdiscipline of games, sports and activities (with no preconceived notion as to what belongs in the program just because it is an activity or because it has been there). Finally, I should like to separate curriculum and methods, the reason for which will become obvious as I proceed. With this slightly modified and expanded set of subdisciplines, then, I will undertake the task of succinctly describing the relationships between exercise physiology and each of its sister subdisciplines.

Simply stated, there exists ideally a working relationship between exercise physiology and every one of the other subdisciplines I have proposed. Part I of Figure 1 illustrates the relationships schematically. The possible relationships are of several kinds: (1) subdisciplines may study or apply certain concepts or principles by working closely together; (2) one subdiscipline may provide or seek feedback from another; (3) one may suggest to the other certain problems for study. Representative examples should clarify the potential relationships I see for exercise physiology with each subdiscipline.

1. With biomechanics: cooperative research to improve running efficiency, lifting efficiency, safety in physical activities, etc.
2. With motor learning: cooperative research to explain the mechanisms responsible for strength and muscle endurance increases; exploration of the improvement of a complex skill where fatigue is an especially disrupting problem

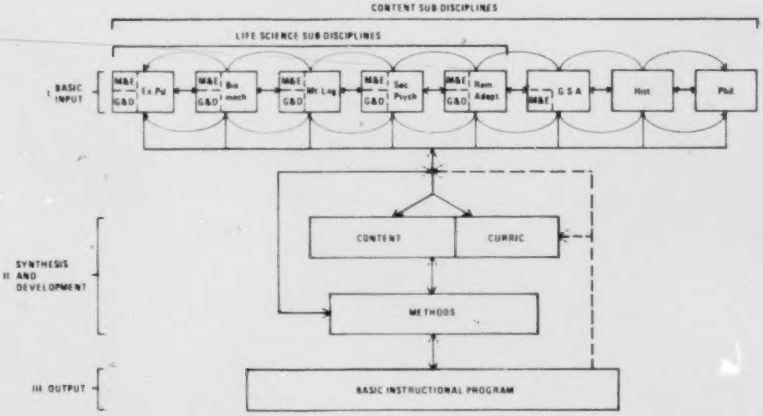
CONTENT SUB DISCIPLINES
LIFE SCIENCE SUB DISCIPLINES
I BASIC INPUT
M&E
G&D
Ex Pu
Bio mech
Mt Lng
Soc Psych
Rem Adapt
G S A
Hist
Phil
CONTENT
CURRIC
SYNTHESIS II AND DEVELOPMENT
METHODS
III OUTPUT
BASIC INSTRUCTIONAL PROGRAM

Figure 1. Schematic view of relationships among proposed subdisciplines in development of basic Physical Education Instructional Program. Solid lines and arrows depict direct input; dotted lines and arrows depict primarily feedback and requests for input.

3. With psycho-sociological: study of some specific endurance performance where motivation and social setting are particularly involved
4. With remedial-adaptive: research involving the techniques of range of motion increase where repairable muscle damage is involved; extent of endurance activity for emotionally disturbed patients in terms of increases in blood lactate level
5. With games, sports, and activities: endurance and power factors as related to age and developmental levels, influence on rules, play area dimensions, and playing time for a new activity; request to exercise physiology to study physiology of a sport with particular reference to heat stress
6. With history: input from history concerning the origin and cultural view of coaching practices that have evolved from a purely pragmatic yet unsupportable motivation
7. With philosophy: philosophy guides the process of examining what is known when we need a rational value decision concerning the use of some physiological principle, especially where knowledge is incomplete; exercise physiology provides part of the scientific base, the material foundation from which the philosopher summarizes and synthesizes.
8. With curriculum; provides both cognitive and physical fitness content for basic program; curriculum asks of exercise physiology, at what age or developmental level can specific activities be introduced safely?
9. With method: exercise physiology provides data regarding methods of attaining fitness as function of age and initial fitness level; method asks exercise physiology to study modified fitness methods that will be effective within specific kinds of facilities limitations.

These examples make it clear that exercise physiology should and could have a close and important working relationship with each of the other subdisciplines.

What Is the Relationship of Exercise Physiology to the Basic Program?

It seems apparent that exercise physiology can have a most intimate relationship with the basic physical education program and does, in fact, in the inter-relationships model I have just described. This particular model is explicit—*there can be no basic program of substance and quality without exercise physiology and the other subdisciplines.* Likewise, it is not possible to have a basic program that is compatible with my definition of physical education without this relationship. Exercise physiology contributes to and relates with the basic program directly as well as with and through the other subdisciplines; the relationship, to be complete, needs to be a two-way thoroughfare, with feedback and constant updating.

To be more specific, exercise physiology has identified many basic principles and concepts that should be a part of the basic program. The following list is by no means exhaustive. There are, of course, many subconcepts and lower order principles subsumed under each of these major headings. Also, there is much yet to be learned, and subsequently added, to this list.

1. *Cognitive* as well as *practical* principles relating to the assessment, attainment and maintenance of: circulorespiratory capacity (aerobic power), strength, muscular endurance, flexibility, and optimal body composition
2. Concepts relating to: (a) the potential values of attaining and maintaining the above fitness qualities; (b) exercise limitations related to age and health status; (c) appraisal of the various substances purported to aid performance; (d) exercise responses, their mechanisms and implications; (e) training adaptations, their mechanisms and implications; (f) effects of regular exercise on growth and development and vice versa; (g) effects of exercise on aging and vice versa; (h) relationships among diet, regular exercise and weight control
3. Principles guiding us as to when children are physiologically ready to safely undertake physical fitness improvement

It seems difficult to escape the obvious: the basic program should receive considerable input from exercise physiology. The relationship is limited only by choice, apathy or ignorance of one or both of the parties involved!

Is there a rationale that encompasses in an organized, consistent and integrated fashion all of the subdisciplines and what goes on in the basic program? NO! Is there a rationale that encompasses what should go on in the basic program? YES!

The unequivocal NO answer to the first question arises from my conviction that, except in a few isolated situations, what we call the basic program of K-12 and college service physical education is *not* the result of any coordinated effort at utilizing input from all of the subdisciplines.

For emphasis of this point, let me state again my definition of physical education: *the study of and educational application of concepts and principles of the motor, cognitive, affective, and social dimensions of and related to human physical activity, be it work, sport, or play, be it for typical or atypical persons.* Unfortunately, our sack is nowhere near this full! Careful inspection shows that the scope of the *study* is limited: that in our basic programs, by and large, educational application is way behind what *is* known; we give lip service to and provide little, if any, purposeful attention to the cognitive, affective and social dimensions; we are obsessed with the play and sport; and we are only beginning to lend adequate support to the need for full range activity for the atypical. All too often, physical education *is* whatever the physical educator *does*. Locked comfortably behind a formidable door, basic physical education all too often sits, oblivious to the knocking at its door by the various subdisciplines wanting to be admitted for an audience!

But what could, and should, the relationship be? That, blessedly, is quite another matter! I see the potential working relationships among the subdisciplines as illustrated in Figure 1. Most of the subdisciplines, especially those currently possessing relatively large bodies of knowledge, are highly interdependent (or should be), and exercise physiology, motor learning, biomechanics, sociopsychology, remedial-adaptive (all with their growth, development, measurement and evaluation components) obviously have input for curriculum and method. In addition, history and philosophy also should provide content input and both can assist with methods development. Examples of the subdisciplines' input to curriculum and method should be obvious. As you see, there are three kinds of input: (1) what I will call *content input* (*what* is to be taught); (2) differentiated from content is *curriculum input* (when, how much and in what sequence information and activities are best introduced); and (3) *method input* (how best to facilitate cognitive, motor, affective and social learning related to physical activity).

Figure 1 portrays the curriculum scholar "gathering content" as well as input regarding the optimal developmental level, proper sequence and time required for the learning experiences, and so on. From these he or she develops a curriculum, which should be an *explicit series of intended learning experiences*. The methods scholar, based on input from the subdisciplines (especially motor learning, sociopsychological, remedial-adaptive and the growth and development components of exercise physiology) as well as from his own research, designs optimizing learning experiences for each and every cognitive, motor and affective component of the curriculum. The historian and philosopher also assist where needed in the processes of developing curriculum and methods, the historian providing carefully conceived probability estimates of the future based on meticulous study of the past, the philosopher providing guidance for decision making where the body of knowledge has gaps or is incomplete, or where value decisions are called for.

Finally, the curriculum and methods scholars must constantly evaluate the results of the learning experiences and re-design as necessary, submit problems for investigation to the other subdisciplines, and so on.

Where does this schema place the practitioner, the physical education teacher? The latter is, of course, the final implementer of our plan for the potential learner and no less important than any of the contributing scholars I have described. Teaching is an art, one which many believe to be almost inborn. Be that as it may, that art, in physical education, must be based on science and can be enhanced by input from science. As a simplified example, assume that the methods scholar has established on the basis of logic and rigorous research that significantly greater numbers of adolescents will develop positive exercise behavior if allowed options than if *required* to participate in certain activities. In appropriate curriculum units, this principle would be heavily stressed in the curriculum methods guidelines. The probability that more teachers will incorporate this principle into their program would thereby be increased and thus we would enhance their "art" of teaching. Along with whatever the teacher brings to the profession in the way of personal characteristics, he or she must be well prepared academically to implement the program to really physically educate our children and youth. The teacher must have a reasonable working knowledge of what has gone into the development of the content and methods as well as the content and methods per se. I do not believe the teacher can effectively teach from a "teach-book" (in other words, cannot use the "cookbook" approach to teaching).

This schema of the relationship among the subdisciplines as it could and should be is, to be sure, incomplete. There are questions to be answered even at the theoretical level let alone regarding implementation. For example, does the curriculum scholar simply develop the series of structured learning experiences as a topical outline leaving the rest to the practitioner, or does he/she expand the outline and include the content in depth? Does the methods scholar simply extract from the research literature or go beyond and conduct a different, more classroom-oriented type of methodology research of one's own?

When it comes to the question of implementation, I ask myself: where and how shall such a schema function—at the local, state, district or national level? How does the availability of competent scholars in all of the suggested subdisciplines influence the answer to this question? Are there sufficient scholars to implement such a cooperative effort at the local or even state or regional level? The answer to me is quite clear: we have no choice at the present—we implement our inter-subdisciplinary effort in a very few isolated local levels or at the national level, and we simply do not currently have the qualified scholars (as I have defined scholars) in *all* of the subdisciplines to do otherwise.

This integrated approach could be implemented and a model basic program developed. Such a model must be flexible. Rather than *reduce* creativity, it can enhance creativity, for it should be clear that no one creates anything totally new, but rearranges and synthesizes that which is already stored in various loci of the sensory-association areas of one's cerebral cortex. This, since creativity cannot exist without models of some sort, why not provide good models to replace those which teachers now have? (The models are generally the K-12 programs to which they themselves were exposed.)

As a further argument to support such an effort, Figure 2 illustrates the effect such a flexible model ought to have eventually on basic physical education. With our hit-and-miss interrelationships among the subdisciplines and with what goes on now in basic physical education, I submit that the distribution of total numbers of optimally physically educated persons in our country presently approximates a curve badly skewed to the left (A). A flexible model developed by integrated efforts of the scholars as suggested by my schema, *presented tactfully but vigorously* to our schools and practitioners, could and should normalize the curve as shown (B). Can our aim be anything but to physically educate as many people as we can to an optimal level so that: they have a thorough knowledge about everything related to exercise, fitness and sports skills; they have the ability and skills, within their genetic limitations, to perform physically, be it in their work or their play; and they might benefit from actual exercise behavior that reflects positive use of what they do know and what they can do?

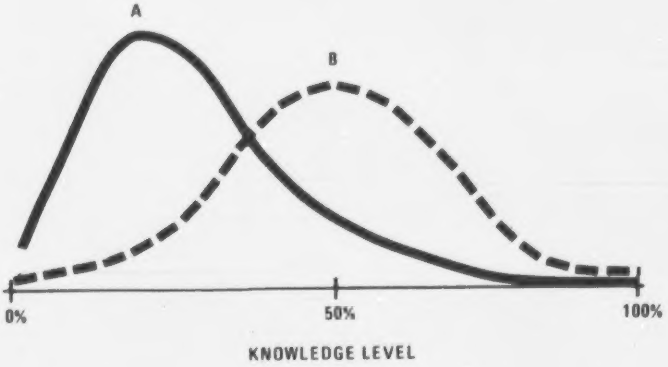

Figure 2. Distribution of physical activity knowledge levels among American adults. A: Estimate of current distribution; B: Hypothesized normalization that could result from proposed approach to basic program development.

I am convinced that physical education has been attempting to fill its sack so that it will stand upright and that small strides are being made. But we will never have a normal curve and will, at best, shift the skewness of our existing curve only very slowly to the right. Our sack will not stand upright as long as our basic programs remain unduly preoccupied with games, sports and activities, giving only lip service to the very important cognitive and affective learning (and most of our content, principles, curriculum, and methods texts will do exactly that). Neither can our sack be filled as long as our subdisciplines work independently, and not until we find some way of initiating and using effective feedback so that the research of our life-science disciplines identifies answers to questions being asked. It isn't likely to happen until we develop more curriculum scholars who are, in fact, experts in more than outlining the activities and sports to be included and in what sequence for how many weeks. These curriculum scholars must incorporate more than topics, games and skills; they must develop specific cognitive and affective content. Likewise, we must have methods scholars to provide us with more than squad arrangements, generalizations about learning, ways to take roll and keep records and grade students; they must investigate, for example, ways of utilizing what we know about social impact, learning principles, and so on, to improve the facilitation of the learning of the cognitive and affective concepts related to physical activity. In short, unless we develop scholars in all of the subdisciplines I have suggested and organize our efforts to integrate and synthesize the good works of these scholars, basic physical education in general will continue to *be* whatever it *does*, with little hope for significant change because it knows no better. And we will continue to have only isolated cases where enlightened individuals extend themselves to provide a basic program that goes beyond an introverted, limited perspective—and even these will continue to suffer from the lack of integrated effort and input from subdisciplines foreign to their own scholarship.

If it is our aim to stimulate a new integrated approach involving many competent scholars from our existing and potential subdisciplines to the improvement of K-12 and college basic physical education, we can do this only if by overcoming our personal biases and by reasoning together. We cannot succeed if we argue and debate emotionally. Even what appears to be a wrong perception need not disrupt progress toward collective creativity unless the receiver allows his emotions to interfere with rational thinking! Such is not easy, especially among this august group of people who do think well and have done so for years. But I urge that we have a go at it; our sack is large but needs to be full to stand upright. We can do this only by an integrated effort; to paraphrase Dickens, "we are several pieces of a tremendous bio-machine, when apart, Pecksniff, but *together we are something.*"

REACTION OF A TEACHER-COACH TO JOHNSON'S "A VIEWPOINT FROM EXERCISE PHYSIOLOGY"

Katherine L. Ley

Many years ago when I first ventured forth as a young professional speaking on panels and joining discussion groups, I was startled by E. C. Davis when he said, "The practical mind is a stone in the road of progress" because I had prided myself on having a practical mind. Ideas had to be useful or they were unworthy of my consideration. My evaluation of a proposal was based on whether it was a good idea (and the majority were) and how soon it could be put into practice. Too few ideas could be implemented immediately; thus, in my opinion, the idea lost merit. Today I am cast in the role of a stone in the road of progress. I am to react to the position paper just presented from the viewpoint of a teacher-coach or student-performer, a practitioner, if you will.

First let me underscore the importance of the topic being addressed by this Academy. The relationship between theory and practice is such a timely issue that I would label it "survival talk" for physical education. I would suggest, however, that we are not so much engaged in a search for relationships as in a search for a *delivery system*. The relationships are there and have been for some time. More are being identified every day in a variety of ways and from a variety of sources.

New knowledge in the form of ideas and concepts has been developed much faster than we can devise ways to apply it in our daily "gym classes" and athletic programs. Here lies much more than "a stone in the road of progress"; it is more like a major chasm or crevasse. We need bridge builders so the goods can be delivered to those who need it most—the teachers and coaches ,who daily must meet the needs of students and performers.

The search for knowledge exploded in the 60s. The stones in the road at that time were represented by a need for research grants. While leaders of the field struggled with the body of knowledge of physical education, a committee funded by AAHPER undertook a project to formulate clear-cut statements of the facts and understandings underlying the exercises and activities in the physical education program. The committee's project culminated in 1969 with the publication of the book, *Knowledge and Understanding in Physical Education*, and the development in 1970 of the AAHPER Cooperative Physical Education Tests for grades 4-6, 7-9, 10-12. There are six standardized grade cycle or step tests—two forms for each grade cycle designed to measure the content that should be achieved by students at the 6th, 9th and 12th grade levels.

The work of this committee is mentioned here because the manner in which its body of knowledge was organized is a direct application of *all* the relationships being discussed at this meeting. The body of knowledge in *Knowledge and Understanding in Physical Education* was organized into the following major headings:

I. Activity Performance: Basic movement skills, body mechanics and concepts fundamental to movement skills in strategies and activity patterns

II. Effects of Activity: Immediate and long-term effects, including physiological responses, fatigue and impairment; capacity for effort; effective utilization of capacity for skills; effective social behavior; self-realization; and development of values

III. Factors Modifying Participation in Activities and Their Effects: Age and maturation, sex differences, stress, physical condition, performance aids, environment, etc.

The concepts were graded as logically as possible from simple to complex and the grade level at which the concept could be introduced was suggested. "It is reasonable to believe," said the committee, "that a concept could be introduced at the primary level, stated in terms that a child of this age could understand and work with, and then stressed again in the intermediate grades when a more scientific approach is taken. On the high school level the scientific principles involved might be studied in depth, and applications of the principles broadened in scope."

Although the project of the committee was initiated in the middle 60's and completed in 1970, relatively few physical educators began teaching the concepts in their daily physical education activity classes. Said another way, the theorists test their hypotheses, and conclusions are drawn from research; students engaged in professional preparation learn about the research; they acquire the facts from the body of knowledge and, we who teach them, *assume* our students now are ready to (and therefore *will*) apply the body of knowledge in their daily "gym classes." We have a wrong assumption!

Education measurement experts tell us that students do not automatically make applications. Therefore, the learning situation must be structured in such a way as to teach students how to make relationships and apply concepts. An instructor who imparts knowledge to a class but waits until the final exam to ask students to draw inferences, cite relationships or apply principles, is being totally unfair to those students. It is quite possible that we have been so busy teaching students all the content we think they need to know that we have not taken time to teach them to apply the knowledge of the many subdisciplines of physical education. We have shortchanged our students who, in turn, have shortchanged their students. The ultimate result is that which we are currently experiencing—a lack of regard for physical education as a discipline among other disciplines, and a lack of respect for the contribution physical education can make to total education.

The failure to teach persons preparing to become teachers how to bridge the chasm between theory and practice has been manifest in another way. As we attempted to fully implement the project on knowledge and understanding about physical education, many, many physical educators observed that "gym classes are for activity;—to teach the concepts of the body of knowledge one needs a classroom, and everyone knows there is too little time spent in activity anyway."

And so I agree completely with my colleague when he says, "Our sack will not stand upright as long as our basic programs remain unduly preoccupied with games, sports and activities . . . and . . . our subdisciplines work independently." Let me quote from *Knowledge and Understanding in Physical Education* to the question, Why teach a body of knowledge in physical education?

> It cannot be emphasized too strongly that physical education is basically an *activity* program, for herein lies its strength as a school subject and a teaching tool. No one can dispute the tremendous importance of physical activity in early childhood as the source of knowledge of the world around us.
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> The need for teaching a body of knowledge in physical education appears indisputable, then, if the school accepts its responsibility to assist the individual to develop his potential, by giving him not only the skills but the background for knowing "how" and "why," so that he may continue to grow throughout his lifetime.

We *must* stimulate an integrated approach like that initiated by the AAHPER-funded project committee. If "the basic physical education program in general continues to be whatever it does," it has little time left for survival. Our programs can and will be taken over by commercial community enterprises. I would rather be a *boulder* in the road if I could cause a detour of the progress being made toward the elimination of physical education classes from school programs because they are viewed as being no more than organized recess!

Probably more has been done in the area of exercise physiology than in some of the other subdisciplines because of the national concern about cardiovascular disease and malfunction. There is a growing interest among persons of all ages about their reaction to exercise, figure control and weight training, endurance and fitness. Interestingly enough, much of this type of thing is being done in Y programs, figure control salons, even senior citizen programs—age groups outside those attending physical education classes in local schools. At the college level one of the most popular classes we offer women in our general program is figure control. The course carries one hour of credit and includes underwater weighing, skin fold tests, nutrition charting, oxygen consumption and aerobic activities. Aerobic dancing has become popular in the dorms as an evening activity taught by members of the classes to interested roommates. The class actually is applied exercise physiology complete with field testing; our major students do not have this type of course in their program of study. Instead we require them to complete a three-credit course in exercise physiology. The lab portion utilizes elaborate equipment not available in local schools and we do not succeed in bridging the gap from theory to practice for all our students because there is not enough time to cover all the content. Some of our students volunteer for independent study projects at the local Y and become exposed to the applications possible. One young man took the women's figure control class because he wanted to work in a chain of health salons that specializes in figure control, a job opportunity we have heretofore considered offensive to our profession. We really should be preparing personnel who have the scientific foundation upon which to operate such programs.

Many of our athletes are shortchanged, too. We train them for competition; we tell them what to do to get fit, but do not take time to explain why they do what they do. If many of our women athletes are not in condition, it may be that the coaches themselves have never experienced such demands. Most of us coach as we were coached, just as we teach as we were taught.

We already know more than we are teaching people to apply. There is considerable doubt in my mind that we need "curriculum scholars" and "methods scholars" to extend our knowledge. Rather it seems we should develop teachers who are scholars in the sense that during their preparation to become professional physical educators they learn to (1) apply concepts, (2) translate the meaning of the concepts into vocabulary appropriate for the age group they are teaching, and (3) conduct field tests and interpret the results to the individuals who are the subjects of the field tests.

Furthermore, I challenge this Academy, with its long heritage of leadership and commitment to the advancement of physical education, to assume the responsibility for two things. The first, in my opinion, would do much to provide a rationale to encompass all basic programs; the second would assure everyone that we are dedicated to the advancement of physical education as a profession.

First, we should develop a standardized curriculum of physical education for grades K thru 12 based on concepts related to the study, practice and appreciation of the art and science of human movement.

For the most part, the concepts have been identified. Each activity, sport or game needs to be analyzed as to which concepts make a substantial contribution. A variety of experiences might be used to master one concept, or one experience might contribute to several concepts.

There is no intent here to sell a packaged curriculum because the curriculum designed for one school will not necessarily meet the needs of another school. Facilities and equipment will be different, as will educational philosophies among teachers. Under this plan, however, every locality, regardless of its geography, climate or social and economic status, would select whatever activities, sports and games it could provide so that the concepts taught would develop physically educated individuals.

The important outcomes would not be *what* one learned to play but rather what concepts one had learned to use because of playing something. Being able to play something *well* would be a fringe benefit, a spinoff, a plus. Physical education would no longer *be* whatever it *does*; it would *do* certain things because of what it wanted students to *be*. Our curriculum would be more like all the other disciplines and something of our very own. We could have the model basic program Johnson refers to—the flexible model that enhances creativity needed to provide programs peculiar to a specific community.

The second project requires the establishment of an in-house accreditation procedure—our own Better Business Bureau, if you will. Any profession worth its salt tries to protect itself from pretenders. There are professional preparation programs that do not include undergraduate courses in exercise physiology, motor learning, measurement and evaluation, biomechanics, history, and philosophy. Why, if we are truly concerned about teaching and applying the interrelationships of these subdisciplines, do we allow persons to practice in our profession who can teach students only *how* to perform activities?

We referee our publications, we referee our games and sport contests, we train officials, but we do not referee our own profession. We must eliminate inadequate programs of professional preparation. As my friend Johnson says, "we can do this only by overcoming our personal biases and by reasoning together. We cannot succeed if we argue and debate emotionally. . . . a wrong perception need not disrupt progress toward collective creativity [and I would add professional betterment] unless the receiver allows his emotions to interfere with rational thinking."

I, too, urge that we have a go at it! It is time for us to become as meaningful to others as we are to ourselves.

RELATIONSHIPS IN PHYSICAL EDUCATION—
A VIEWPOINT FROM BIOMECHANICS

Roger K. Burke

The model for these sessions of the Academy depicts a hypothetical universe, with the basic physical education program located at the solar center, and a number of discrete but related subdisciplines orbiting circumferentially around that central sun. These planetary subdisciplines may have been spun off from the central body or may have been attracted from outer space by gravitation, or then again the whole system may have coalesced out of some primordial nebula. The origin of this heavenly system is not under our discussion, but if it were, I would favor the Big Bang Theory, or perhaps the concept of a Black Hole would be more descriptive.

My assigned mission is to land on one of these planetary bodies—the one called Biomechanics—and to do four things: (1) define what it is and where it is—that is, report the coordinates of its displacement; (2) identify interrelationships between biomechanics and the other oribiting bodies—that is, analyze circumferential dynamics; (3) discuss interrelationships between the central sun of physical education and the planet called biomechanics—that is, look at centripetal and centrifugal forces (which may or may not be equal, and which hopefully in this case are not opposite); and (4) suggest what the ideal interrelationships in this overall system could or should be—that is, predict the ultimate equilibrium state.

Let's get to the analysis. What are the coordinates in space? What is the nature of biomechanics, and what are its objectives?

I. Coordinates in Space: The Nature and Objectives of Biomechanics

Biomechanics is a subspecialization of the parent discipline of Kinesiology, spelled with a Big K—the whole study of organismic movement, including as a special case the study of human movement. Biomechanics takes as its theoretical basis the principles of classical Newtonian mechanics and applies them by using the methods of mechanical engineering and mathematical analysis. It feeds back its findings to the parent discipline, Kinesiology, and to the many other interested disciplines and applied fields.

The fundamental assumption of biomechanics is that organisms behave like machines. In other words, biomechanics studies the machine-like properties of living organisms, especially humans, and temporarily ignores the fact that the organisms may have a personality, value system and influential social context. Such exclusivity of view-

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point is artificial, but necessary at the outset to delimit the field and set the stage for experimentation.

If one measures the location in space of a few anatomical landmarks, then the displacement, velocity and acceleration of the whole body and its parts can be tracked rather accurately. After substituting these kinematic data into established equations, a complete dynamic analysis emerges. Forces and energy changes, which were obscure at first, can be identified and quantified.

Applications of biomechanical analysis have been revealing. Some intuitions about human movement have been confirmed, but many others have been rejected. Insights gleaned by eyesight and by subjective kinesthesis frequently have been shown to be false. There are some classic examples of this in sports. For example, the great Johnny Weissmuller, who in 1929 held the records in every freestyle swimming event from 100 yards to one-half mile, said (11) that he inclined his body and utilized his powerful flutter kick to achieve an "aquaplaning effect" which lifted him partly out of the water and thus reduced water resistance. Mechanical analysis based on motion pictures showed that he was all wet. It is quite possible (although speculative) that if Japanese swimming coaches had paid attention to Weissmuller's book instead of studying biomechanics with T. K. Cureton at Springfield College, which they did, they might not have been able to dominate the ensuing 1932 Olympic swimming events.

It is not necessary here to delineate the extensive applications of biomechanics to a myriad of other fields of study, which are literally too numerous to mention. They range from surgery and rehabilitation, through astronautics, to the design of bleacher seats. Sometimes it seems that only automobile designers have ignored biomechanical principles, for we have yet to see a driver-passenger compartment fit for human habitation from the standpoint of either comfort or safety. But instead of dwelling on the applications of biomechanics, let us look at a few of its general characteristics and limitations.

Biomechanics is not a new field despite many recent claims to the contrary. The theoretical aspects of mechanics were thoroughly worked out by Isaac Newton in 1687, and were polished by the successive generation or two of physicists. It is true that there were some horrendous problems in applying mechanical principles quantitatively to human movement. Engineers are more accustomed to working with simple, standard geometrical shapes, rigid or only slightly deformable objects, and masses of evenly-distributed density. But the human machine is geometrically irregular; the orientation of its parts is constantly changing; and the density of its mass is heterogeneous. Nevertheless, the imposing complexity of the human machine had been solved by the end of the 19th century, thanks to the genius of the brothers Ernst, Wilhelm and Eduard Weber, Alfonso Borelli, and Wilhelm Braune and Otto Fischer.*

Braune and Fischer dissected cadavers and prepared a set of constant proportions with which to specify the parameters of the human machine. In meticulous detail, they delineated the complete theory and methodology—anatomical, mechanical and mathematical—for the quantitative analysis of human movement. There has been no substantial advancement in the fundamental theory and methodology of biomechanical analysis since that time. Recent advances have been almost entirely in instrumentation: super-high-speed cameras, automatic stop-action projectors, three-dimensional mirror systems, electromyographs, force plates, electrogoniometers, digitizers, computers, and plotters.

The thoroughness of the early workers was responsible, in effect, for one of the most commonly-voiced criticisms of current biomechanical research. It is not directed toward the testing and advancement of theory. Its output is descriptive analysis. In the world of scholarship, many authorities look down their noses at descriptive research. Personally, I see no reason to apologize for this state of affairs. As a mature aspect of science, biomechanics long ago achieved the goal of many sciences—the state in which its fundamental predictions are of almost certain validity. Problems in biomechanics are not questions related to its own theory; they are problems of instrumentation, of exactitude of measurement, and of determining precisely how its established principles apply to particular examples of human movement. This permits a significant contribution to virtually every other field of inquiry. In fact, such variety of applications is one of the strengths of biomechanics.

The functions of civil, structural and mechanical engineering are analogous to those of biomechanics, with some differences though. Biomechanical engineers seldom design machinery; their definitive machine, the living organism, has already been invented and manufactured by a master designer—God and/or evolution, depending upon your viewpoint. Living machines are absolutely superb, although every one of them eventually is recalled by the manufacturer.

Attempts by biomechanists to invent new ways of performance by the living machine have not been very successful. Instead, the biomechanist looks at examples of biologic movement to try to decipher the obscure details of its modus operandi. The resulting information and concepts often can be used to assist other performers to learn, improve or recuperate. The National Aeronautics and Space Administration subsidized much biomechanical research to find out how an astronaut floating weightlessly in space could turn a screwdriver without simultaneously turning himself in the opposite direction. Orthopedists have used biomechanics to design artificial limbs that not only have the same weight and length as the good limb, but also the same inertial characteristics, so that the gait of an amputee will be even and rhythmical.

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*Reference to English-language translations and commentaries on the historical works of these scientists have been compiled by Rasch and Burke (9). An abridged translation of some of the works of Braune and Fischer are readily available (2).

So much for "coordinates in space." The next section examines "circumferential dynamics"—the interrelationships of biomechanics and some of the other subdisciplines orbiting around physical education.

II. Circumferential Dynamics: Relationships of Biomechanics to Other Subdisciplines

Historically, *exercise physiology* has consistenly utilized biomechanics in the development of its most important principles. Mechanics is clearly a central aspect of studies in energy metabolism, respiration, hemodynamics, heat exchange and ergometry. Although biomechanics and exercise physiology arise from different background disciplines, they tend to join hands in research. For example, the classic determination of human power output by Wallace O. Fenn (3,4,5) is a landmark in both physiological and biomechanical research. This kind of merging of specialized methods in research is the sort of interdisciplinary relationship which could be exploited to an even greater extent, and with a greater variety of disciplines.

Another subdiscipline, *motor behavior,* has had little historic relationship with biomechanics. Unlike biomechanics and exercise physiology, whose theories are well established, motor behavior research is churning and seething with the development and testing of theories. Potentially, the interrelationship is great. The role of biomechanics should be to contribute the advantages of established methods and laws to the testing of important theoretical hypotheses in motor behavior. Eventually, such activity will contribute conceptual understandings to the discipline of Big Kinesiology, considered here to be the larger discipline of interest.

Socio-psychology of sport is another orbiting subdiscipline in which, so far, there has been little interaction with biomechanics. The two areas presume fundamentally different models of the nature of human beings, and one might think that this precludes conjunctive research. However, the December 1976 issue of the *Research Quarterly,* for example, contains a study of "Biomechanical Correlates of Psychological Differentiation in Female Athletes" (7). This sort of research emphasis is pregnant, and the offspring is likely to be cherished by both parents.

Turning now to the interrelationships between biomechanics and the area of *curriculum and methodology*, a major point can be made by quoting from Philip H. Phenix' *Realms of Meaning* (8), the book that served as major source reference for the Academy meetings two years ago.

> The educator's function is to direct the student toward authoritative knowledge rather than toward the lower forms of learning. Such knowledge is found within the disciplines. Hence, it is to the disciplines that the teacher should turn for the content of instruction. . . . Furthermore, . . . *all* material should come from the disciplines, and none from other sources. . . .
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> The principle of disciplined knowledge excludes commonsense approaches to learning. . . . Education is justified only if it makes it unnecessary for every generation to begin the long climb to civilization from the beginning. It is justified by providing a long head start. . . . This does *not* mean beginning at the level of everyday, commonsense opinion nor even at the level of skills that have proved their usefulness in the past.

In transferring the implications of this statement from general education to professional education, some modifications might be warranted. But with the exception of a few experiential learnings which do not emerge from the disciplines, the statement should stand. Its message, if one is willing to accept it, clearly defines the relationships between biomechanics and curriculum and methodology. Biomechanics supplies a wealth of concepts and facts to curriculum studies. Conversely, problems arising in the latter area should be used in formulating biomechanical research problems.

Of course, some needed biomechanical research is lacking. To date, biomechanical research in sports has been directed almost exclusively to the analysis of superior or championship performance. At the other end of the scale, kinesiological research in medicine and therapy has emphasized the pathomechanics of locomotion, and to a lesser extent the mechanics of minimal activities of daily living (ADL). Between these extremes, there is a serious gap. We know little about the biomechanics of unskilled performance, and of the biomechanics of the motor development process of either "normal" or disabled persons. Such knowledge is critically important to curriculum and methodology, yet it is a relatively unexplored field of research.

Furthermore, there is a remaining problem of major dimension. The subdisciplines around physical education truly *are* in orbit. Although personnel devoted to professional education may be housed in the same campus buildings as personnel concerned with research in the disciplines, sometimes they seem to live in different worlds and to speak different languages.

Something more than "further research" is required. It must be a drastic revolution in the professional undergraduate curriculum because the curriculum inherited from the days of "normal schools" is badly outdated. Undergraduate physical education majors need extensive basic study in the sciences and social sciences. They need college algebra and analytic geometry, a year of general biology, general and organic chemistry, a semester of physics, psychology beyond the introductory level, at least one course in sociology, and a course in philosophy. They need this general education unless it is our purpose to train playground leaders instead of professional physical educators. Lest anyone think that these prerequisites are unrealistic and too stringent, it should be noted that similar prerequisites are required routinely in comparable professional fields, such as nursing and physical therapy. In education and physical education, there seems to be a prevalent belief that one can understand high principles without wading through hard-core fundamentals. Every interscholastic coach, and most exercise physiologists, know this is not true. What about the average teacher of undergraduate history and philosophy of sport? Of methods? Of curriculum? Of administration? Or, for that matter, of structural kinesiology and biomechanics?

We are a movement science, but we often relegate specific muscle actions to an inconspicuous table in the back of a kinesiology book. We teach biomechanics, but many of our students, when given the equation "$s = \frac{1}{2}gt^2$," can't solve for "t."

Last but not least, what are the interrelationships between biomechanics and *history/philosophy of human movement?* The study of any particular scholarly field, such as biomechanics, requires one at least temporarily to adopt the assumptions and philosophic outlook of that specialization. When the biomechanics researcher goes into the laboratory, he/she must give allegiance to the concept of "mechanical man" (12). In the laboratory, any other allegiance would destroy the researcher's scholarship. But what of the situation when the researcher comes out of the laboratory? There is no commandment that he/she must retain the philosophical viewpoint which was so essential to his/her scholarship. One uses the principles of structural engineering to build a skyscraper. One uses the principles of biomechanical engineering to analyze football skills. A moment later, the problems may be quite different. How will the skyscraper be financed? Or, is football a suitable activity for the basic physical education program in elementary school? To answer these questions, an entirely different philosophical outlook may be necessary.

What is true? What is real? What is right? What is wrong? These are questions for philosophy, not biomechanics. Philosophy helps both the specialized scholar and the generalist to understand the assumptions implicit in the various disciplines. Philosophy also illuminates the limitations of applicability of these assumptions. Looking in the opposite direction, disciplines produce information to serve as assimilative materials in the formulation of general philosophies.

This history of biomechanics contains many implications which have never been explored adequately in the literature of physical education, although they have elsewhere (6). How did it happen that Braune and Fischer developed their model of the machinery of human movement? They did so because they were motivated, appreciated and subsidized by a social system that not only had discovered the utility of machinery but also perceived that humans could be used as inexpensive ready-made machines in industry and warfare. Similarly, exercise physiology at the time of its birth was properly known as "work physiology." These disciplines emerged from a particular operant philosophical assumption about the nature of human beings. Appreciation of historical antecedents could lead us to a more careful examination of the meanings derived from the disciplines as well as to a more sophisticated understanding of the meaning of contemporary human movement activities, such as organized competitive sports.

III. Centripetal Forces: Relationships of Biomechanics to the Basic Program of Physical Education

So much for the circumferential relationships among the orbiting subdisciplines. It is time to examine centripetal relationships between biomechanics and the basic program of physical education—the thing that is the central sun to so many of us.

Physical education is not *all* movement. After all, there are cognitive and affective domains, as well as the psychomotor. And even this modern version of the old spirit-mind-body trinity is employed mainly for the purpose of emphasizing the unified integration of the living human being.

Nevertheless, "movement" is one of the best definitive words with which to characterize physical education. Movement is the prominent focus, the universal medium, and the most obvious visible product of physical education. To the extent that physical education is movement, then in that sense and to that same extent it is also biomechanical. The relationships are implicit. One might only raise a few questions about implementing these relationships.

First, how much does a *performer* need to understand about biomechanics? A short answer could be, "Not much!" Many of the most outstanding champion performers have known nothing of biomechanical principles. And, if the truth be known, a few of them were probably incapable of such understanding.

Next, should the performer's attention be centered on biomechanics during his performance? The short answer: "Sometimes, but not often." John Hughlings Jackson, "the father of modern neurology," was the first to state that movements, not muscles, are represented in the motor centers of the brain (10). This explained why thinking about contracting a specific muscle tends to disrupt a fine coordination. Today, we would revise Jackson's statement by speaking more in terms of motor programs than of specific movements in isolation because a given movement can sometimes be activated in one patterned context but not in another.

Analogously, it seems certain that knowledge about a mechanical principle, such as moment of inertia, is stored in the brain remotely from the location of a motor pattern whose function is precisely to manipulate a moment of inertia. However, a performer need not be discouraged from acquiring mechanical insight into his/her performance. Indeed, such knowledge might be useful to an advanced performer or to a beginner learning a simple skill; or it might be motivational or satisfying in its own right. Still, there is no solid evidence that thinking about mechanics while performing is a profitable strategy. The title of a popular primer on mechanics is *Learn Science Through Ball Games* (1). No one has yet written a book called *Learn Ball Games Through Science,* and the idea is questionable. Even in such a mechanical sport as wrestling, maneuvering to a position of good leverage should be a matter of programmed response to a kinesthetic pattern rather than a reasoning process. In education, formal mechanical insight might better be regarded as concomitant learnings than as precursors of improved motor performance.

Another question is, how much does the *coach or teacher* need to understand about biomechanics? And if, again, a brief answer is required, it should be "The more the better!" Mechanical terminology might well be avoided, but coaching advice should be based on sound mechanical insight. Knowledge from biomechanics—and from other disciplines—can replace the notoriously unreliable intuitions derived from personal performing experience. Besides, what athlete is so versatile as to have had experience in all of the activities usually included in a well-rounded physical education program?

IV. Ideal Relationships in Physical Education: A Global View

The final task of this paper is to look globally at the described universe of discrete but related bodies. What is the problem here? Perhaps it might be described in terms of fragmented overspecializations, divergent directions and inadequate communications. If this were the case, perhaps the solution would be to prevent independent development of the specializations.

The idea can be rejected. There is an entirely different way of looking at the universe. Perhaps, instead, it is evolving normally, under the influence of its own natural laws. That which appears to be divergent overspecialization is instead a tour-de-force in the production of knowledge. Of course there are attendant problems. Progress always creates problems. Progress in professional physical education has been spectacular and appears to be increasing at an accelerated rate. It has been powered by the increased output of the disciplines, only a few of which have been mentioned here. We need deeper, more sophisticated specializations, and that's exactly what we have been getting.

We need a drastic upgrading of professional training programs, and that, too, is exactly what we have been getting. Look at the increase in quality of undergraduate textbooks, the improvement in laboratory facilities, and the advances in providing internship experiences. Look at the sophistication of fitness programs, a mere 30 years after we first discovered the principle of progressive resistance. Look at the biomechanical expertise of coaches of swimming and track and field, and note that the concept of Big K Kinesiology is penetrating even the traditions of baseball.

We do need improved communications, and we do need intensified interrelationships among the separate specializations, but that's exactly what we are getting. Look at the concept of mainstreaming in adapted physical education and compare it with what we used to call "correctives." Look at the new concepts of sports medicine and of sociopsychology of sport—fields that defy attempts at making clear-cut definitions, and yet which are so effective in breaking down barriers between disciplines.

And, finally, look at the idea of Big K Kinesiology. Don't tell anyone outside the field, but in truth it has not yet achieved the status of a real discipline. Maybe it never will. But it is giving us a focus we never had before, and a rationale for intercommunications.

In the universe around physical education, there may be some disorder—but it is the disorder of orderly evolution.

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REACTION OF A STUDENT PERFORMER TO BURKE'S "A VIEWPOINT FROM BIOMECHANICS"

Henriette Heiny

This paper is basically not at variance with Roger K. Burke's previous position statement. However, starting from a performer's viewpoint, some contemplations will reveal that a person indirectly involved will put a different emphasis on the same subject matter.

It is hard to imagine that there is any activity area in physical education or athletics that does not want or need the input we are gaining through biomechanical research. Established mechanical principles of the human body have become so much a learning and teaching aid that they have merged into the methodics of teaching. The prospective physical education teacher and coach of today deals with methods of problem solving that only 10 years ago were in the hands of specialists alone. We will have to admit that in spite of still numerous unsatisfactory conditions, the partnership between physical education and the related sciences has become much closer.

Biomechanics is one of the younger subdisciplines that is helping us to a more thorough and precise knowledge of the whole of human movement. Recently its results have become more valuable since emphasis is put on their applicability in practical fields. The stage of mere data acquisition seems to have passed. The development of research equipment is advancing continuously, making it possible to approach more complex problems. As a result, publications have become more relevant to the specific sports than was frequently the case in earlier years.

Biomechanists will probably be astonished about the frequent use of biomechanical literature by performers and coaches. A successful coach regards his/her gymnasium or track field as a testing area of suggested changes in techniques. The coach's suspicion toward old textbooks and traditional opinions should be one of the strongest motivation factors for any scientist close enough to observe this urge for revision. But not the coach alone, a certain breed of performer too, is not satisfied any more with the critiqueless repetition of motor skills to the effect of ripped calluses. We know that the understanding of biomechanical principles will not prevent incidents like this, but it will help to avoid a certain number of mistakes that lead to faulty motor patterns and, as a result, to limited success.

It is true that biomechanical research has done little more than verify already known facts. But this does not speak against its usefulness. In other cases research has given helpful suggestions on economizing energy input or increasing the performance level with more efficient techniques. To a certain degree, the improving of competitive performances, especially in individual sports, are an example. In gymnastics, for example, biomechanical research has helped to clear the question of structural classification of gymnastics skills. Former mistakes in classification, and with it the faulty use of terms, are in the process of being removed, and a terminology from a more objective aspect is being worked on. Unfortunately this development does not show up in the American sports literature as would be desirable. The interested performer and coach have to fall back on western and eastern European sources to benefit from this valuable process.

According to this literature, the new approach has an important influence on the methodics of gymnastics: the structural classification of skills simplifies the teaching. It occurs that for two different skills physical and motor prerequisites, or even some stages within the hierarchy of leadups, can be completely identical. This means through biomechanical research we are given a tool to clean up the frightening disorder that makes so many physical education teachers hate to teach gymnastics. Furthermore, the fact that elements of different skills correspond exactly to each other, has a positive result on the process of motor learning through the means of transfer. Both teacher/coach and student/performer benefit from this development, provided that this knowledge has found its way into physical education teacher education.

This paper agrees emphatically with Burke's contention that coaches and teachers have the responsibility of knowing the principles of biomechanics just as well as knowing the didactics and methodics of teaching. However, we should go even further and state that the performer, and that includes to a certain degree the younger student performer, should be given more chances to consciously apply in physical education classes what he/she is dealing with in mechanics classes. Right here lies a chance—with biomechanics intelligently simplified and reduced to basic principles—to let the younger generation grow up with a new understanding of their body being a part of a mechanical world, underlying the same rules as does every machine. Our new teaching philosophies aim to develop more responsibility and independence on the student's part. The teaching approach of problem solving is a good basis from where we can ask questions like: "How come Roger works so hard when he runs, but he seems to run on a spot and doesn't get anywhere?" If the teacher would not just correct Roger but discuss the underlying principles, he or she might be more successful in many cases. The statement that it is not helpful to a student when he thinks about mechanics while performing does not refer to the learning process as a whole, which includes more than just the action as such. Understanding of mechanical principles can help in the creation of a mental picture, which a student will have to establish before he tries. To our children, technique is not something strange and unperceivable any more. The environment is full of mechanical equipment and today's school curriculum is eager to teach children its use. Why not have them understand their own movement from the same viewpoint?

From the performer's and coach's standpoint another question is of special interest. How far can biomechanical research go in inventing completely new techniques to achieve better competition results? That it is possible has been proved in some incidents. The somersault long jump is a perfect example. Professor Ramey from the University of California, Davis, states:

> the technique evolved from a recognition that during the support phase the jumper develops angular momentum that results in a forward rotation of the body if the jumper stays in a fixed position during the flight phase. Athletes react to this effect by executing arm and leg motions that effectively attenuate the rotation effect. . . . T. Ecker correctly reasoned that instead of trying to control the unwanted forward rotation in the flight phase, the athlete could use it to turn all of the way over and produce a somersault. (2)

A few athletes were adventurous enough to try this and it showed that they had better performances in this technique than in the conventional technique. Sure, this test cannot prove that the new technique is absolutely superior, nor can another test, conducted at tne Washington State University, prove an opposite opinion (1). It needs the willingness of many more top athletes to try out such suggestions and test them for their effectiveness. But the step has been made where mechanical hypothetical reasoning has challenged the performer to test it. Here in the United States we will agree that this approach is rather new, and opposing opinions toward its admissibility will probably emerge.

In eastern European countries literature concerning similar ideas dates back to the 50s and 60s. It seems that for each sport the mechanical principles and characteristics are established as a basis on which all other biological factors are discussed. These include the individual's constitution, i.e., the physical and hereditary disposition, the ability of functional adaptation, the mechanical wear and tear and density of muscular tissue, and others. With statistical longitudinal studies, the authorities seem to have established ways of predicting, in the early stage of childhood, what somatotype, or structural development, will take place under normal circumstances. In the training programs of the USSR, for example, subjects are rejected or accepted for a particular sport according to their body type. Is this not choosing the right machine for a specific mechanical job? It is a more philosophical and ethical question if we want to accept a completely planned and guided system like this. An extreme position is seldom the best solution. However, we can still learn something from these eastern European research labs—that is the cooperation of relating disciplines.

For us, a decrease of inappropriate pride of place, a decrease of disturbing differences in terminology, and a closer cooperation with those who are supposed to benefit from this research, are definitely prerequisites for the continuation of the thus far satisfactory development in biomechanics. Above all, the human body is a very "individual" machine, and its ability to perform is dependent upon a great variety of factors, the concerns of which belong to the fields of different scientists. Responsibility for our better understanding of the whole of the human movement rests with all of these scientists.

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RELATIONSHIPS IN PHYSICAL EDUCATION: A CURRICULUM VIEWPOINT

Ann E. Jewett

Scholars who identify curriculum as their area of inquiry have more difficulty defining their field of study than the average researcher, practitioner or professor. Although curriculum development has shown much vitality in schools and schooling since the founding of this country, it is relatively young as a science (B), and definitions are still evolving. For today's purposes, I have selected a phrase from the ASCD 1976 yearbook, *Perspectives on Curriculum Development 1776-1976*. Curriculum development centers upon "the opportunities for growth and development for all who are influenced or affected by the guidance of the school. These opportunities and activities are provided through the various forms and arrangements for instruction" (3). More specifically, curriculum is concerned with overall educational planning; instruction is the implementation of that plan, focusing on the teaching-learning process.

Administration and supervision, like professional specializations, are related to curriculum. Administration provides leadership and management functions in the development of curriculum. Supervision is intimately related to curriculum when its focus is supervision of instruction; as a leadership function, supervision of personnel is more directly a responsibility of administration. I submit that curriculum is the central area of the three from a disciplinary standpoint. Physical education curriculum theory is a branch of general curriculum theory. Its nature differs from physical education administration and supervision in that physical education curriculum requires unique subject-matter input at the theoretical level as well as the application level, whereas both administration of physical education and supervision in physical education apply general theory (of educational administration and of supervision, respectively).

As a branch of general curriculum theory, the nature and objectives of the subdiscipline of physical education curriculum possibly can be understood best by reviewing the five conflicting conceptions of the curriculum categorized by Eisner and Vallance. The cognitive processes approach, according to Eisner and Vallance,

> ...is primarily concerned with the refinement of intellectual operations. It refers only rarely to curriculum content, focusing, instead, on the how rather than the what of education. Aiming to develop a sort of technology of the mind, it sees the central problem of curriculum as that of sharpening the intellectual processes and developing a set of cognitive skills that can be applied to learning virtually anything. (4)

Bereiter illustrates this position, asserting:

> Schools do not and cannot successfully educate—that is, influence how children turn out in any important way. The most they can do successfully is provide child care and training. (1)

The cognitive processes approach has not held much appeal for physical education curriculum specialists since the development of cognitive process skills has never been viewed as a primary responsibility of our subject field. It is conceivable, however, that as we concern ourselves with motor process skills, we might develop a parallel orientation to the curriculum in physical education.

Curriculum as technology is a second approach, one which has found many enthusiasts in physical education. Eisner and Vallance have described this approach as follows:

> It conceptualizes the function of curriculum as essentially one of finding efficient means to a set of predefined, nonproblematic ends...It is concerned not with the processes of knowing or learning, but with the technology by which knowledge is communicated and "learning" is facilitated....The focus is less on the learner or even on his relationship to the material than on the more practical problem of efficiently packaging and presenting the material to him. (4)

Physical educators who have adopted the use of highly specific, precisely stated behavioral objectives as their orientation to curriculum development are reflecting the curriculum-as-technology conception. Curriculum materials are often prepared as programmed learning sequences. Task contract systems and computer simulation techniques are frequently used to implement this approach. The names of Gagné, Silverman and Glaser are among those identified with the conception of curriculum as technology.

Eisner and Vallance have labeled a third approach self-actualization or the curriculum as consummatory experience.

> Strongly and deliberately value saturated, this approach refers to personal purpose and to the need for personal integration, and it views the function of the curriculum as providing personally satisfying consummatory experiences for each individual learner. It is child centered, autonomy and growth oriented, and education is seen as an enabling process that would provide the means to personal liberation and development.
>
> This approach focuses sharply on content....this orientation is concerned almost as much with process as the two preceding orientations, but in a different sense. Rather than directing itself to how the curriculum should be organized, it formulates the goals of education in dynamic personal process terms....It is reconstructionist in a very personalized sense....
>
> As content,...the curriculum is seen as an end in itself. As a stage in the life process, education would provide both content and tools for further self-discovery. (4)

The self-actualizers, including Phenix, Junell, Greene, Maslow, Benne, and Pilder, "conceive of education as an integrative, synthesizing force, as a total experience responsible to the individual's needs for growth and personal integrity (4). Some of the concepts and much of the terminology of this approach are popular in physical education literature. In my judgment, however, as a basis for actual curriculum development in physical education, the self-actualization approach has not been embraced with any genuine enthusiasm. I believe that this explains the fact that the most eloquent spokesmen for "the new physical education" are not themselves physical educators. George Brown, Paul Brandwein, James Michener, and George Leonard have reached people whom we have consistently failed to reach because they have communicated their insights into the self-actualizing aspects of sport and physical education and the potential of the physical education curriculum as consummatory experience. By and large, physical educators have not sought to strengthen physical education curricula by providing the means to personal liberation and development through "this enlarging of the human adventure that sports are all about" (9), or by stimulating the search for the "ultimate athlete" as "one who joins body, mind, and spirit in the dance of existence" (6).

Curriculum as social reconstruction, as the fourth perspective is designated, is described by Eisner and Vallance in part as follows:

> With this orientation there is a strong emphasis on the role of education and curriculum content within the larger social context. Social reconstructionists typically stress societal needs over individual needs; the overall goals of education are dealt with in terms of total experience, rather than using the immediate processes which they imply. Social reform and responsibility to the future of society are primary....
>
> An approach in which social values, and often political positions, are clearly stated, social reconstructionism demands that schools recognize and respond to their role as a bridge between what is and what might be, between the real and the ideal. It is the traditional view of schooling as the bootstrap by which society can change itself....it embraces both a present and a future orientation, both an adaptive and a reformist interpretation of social relevance. (4)

Rarely has physical education curriculum development been dominated by the social relevance perspective. The dominant political orientation has generally been conservative. Not many of us are futurists. We have welcomed very few radicals, social reformers and aggressive reconstructionists into leadership roles in our profession. Few of us seek guidance in the writings of Marx, Mann, Illich, Molnar, Apple, and Pinar. When physical education curriculum has been influenced by a conception of social relevance, it has been with an adaptive rationale, emphasizing the need for fitness for future survival as a society.

Academic rationalism is the most tradition-bound of the five orientations, according to Eisner and Vallance.

> ...academic rationalism is primarily concerned with enabling the young to acquire the tools to participate in the Western cultural tradition and with providing access to the greatest ideas and objects that man has created. Those embracing this orientation tend to hold that since schools cannot try to teach everything or even everything deemed worth knowing, their legitimate function is that of cultural transmission in the most specific sense....The curriculum, it is argued, should emphasize the classic disciplines through which man inquires, since these disciplines, almost by definition, provide concepts and criteria through which thought acquires precision, generality, and power....
>
> Emerging in the curriculum literature currently is a strong orientation toward "the structure of knowledge"—a significant rethinking of the traditional disciplines....By digging to find the structural bases of the disciplines, the structure of knowledge question is bringing a new and sophisticated concern with process into a traditionally content-saturated conceptualization of education....The structure of knowledge orientation is a dynamic new development within a very old field. (4)

Academic rationalism is alive and well. It could be argued that this perspective does not apply to physical education, since physical education has never enjoyed the status of a "classic discipline" or even an "established discipline." Certainly Hutchins, Bestor and Koerner never recognized physical education as a discipline, although Schwab might be willing to do so. But to the extent that curriculum planners in our field have advocated a continuing emphasis on time-honored content and have recommended analysis of the body of knowledge relating to human movement phenomena as a basis for curriculum organization, the conception is a structure-of-knowledge orientation. I submit that academic rationalism, whether it be interpreted through a movement-forms, movement-elements, fitness-components, or organized-knowledge model, is in fact the norm in physical education curriculum development.

I have chosen to delineate the nature and objectives of curriculum as a field of study by using the Eisner-Vallance analysis of five conflicting conceptions of curriculum. I believe this analysis to be the soundest available. However, this portrayal of the nature of curriculum is incomplete without some additional attention to those who style themselves as reconceptualists. Macdonald distinguishes among three groups of scholars in the curriculum theory field in his introductory chapter to *Curriculum Theorizing*. "One group...sees theory as a guiding framework for applied curriculum development and research and as a tool for evaluation of curriculum development" (7). The second group is characterized as conceptual empiricists. "These scholars work to achieve conceptual consensus, to identify variables operative in the curriculum, and, using the empirical methods of the behavioral sciences, to explain and predict curriculum phenomena" (11). The third group is characterized as revisionists or reconceptualists.

Pinar estimates that 60 to 80 percent of curriculum professors belong to group one, the traditionalists. He states that the conceptual empiricists constitute perhaps 15 to 20 percent of curricularists. In his opinion, although the reconceptualists represent only 3 to 5 percent of the curriculum field, "their importance for the field far exceeds their number." He states that the reconceptualists can usually be subdivided further:

> One subgroup is distinguishable by its apparent primary interest in criticism. This criticism may take historical form, as it does with...Cremin and Kliebard; it may be methodological, as it is with...Apple and... Mooney, or it may take political form, as it does with [Mann].
>
> A second [subgroup] is concerned with understanding various aspects of curriculum, such as conversation, temporality, and language in... Huebner's case; consciousness in...Greene's; transcendence in...Phenix's; and sanity, madness, and experience in...Pinar's. (11)

The primary concern of the curriculum specialist in any field is educational decision-making. He or she attempts to develop expertise relating to decisions concerning the statement, selection and relative priorities of educational aims and objectives, the selection and organization of subject-matter content, student-teacher interaction, and evaluation. Curriculum theory, according to Macdonald, "is the study of how to have a learning environment" (7). In the subdiscipline of physical education curriculum, the nature of human movement phenomena is a significant factor in making all of these decisions. Interrelationships among particular movement phenomena often serve as major determinants in curricular decision-making. Thus, all subdisciplines of physical education are inextricably related to curriculum.

The disciplinary knowledge of biomechanics is crucial to sound curriculum development, whether efficient and effective motor performance is a primary aim or a key means to reach an objective of lifetime fitness or a more immediate self-realization goal. The findings of research in exercise physiology are clearly needed in determining content appropriate to the development of fitness, establishing training regimens, making decisions concerning frequency and duration of activity sessions, and modifying physical activity programs for persons of differing ages, motor abilities and levels of physical conditioning. Insights gained from research in motor learning and skill acquisition should provide guidance concerning delivery systems to the curriculum specialist with a technological orientation, identification for the academic rationalist of the most economical practice procedures to be used by students in mastering traditional movement activities, and cues to the curriculum self-actualizer for facilitating self-directed learning. Curriculum researchers share with those in social psychology and sociology the research methods of the social scientists, especially the large majority of curricularists who classify themselves as pragmatists or conceptual empiricists. As the curriculum field is attempting to develop historical perspective, historical criticism is becoming an increasingly effective tool in making curricular decisions, especially those relating to aims and teacher-student interaction. Philosophy of sport and physical education plays a major role in curriculum development since curriculum theory incorporates axiology and logical analysis. The reconceptualists are striving to revise curricula primarily in terms of phenomenology, existentialism, humanism and alternative social and political philosophies.

I have been charged to emphasize the relationships between the subdiscipline of curriculum and the basic program of physical education for all students and to suggest a rationale that encompasses all of the subdisciplines and what should go on in the basic program of physical education. The direct focus and absorbing concern of the curriculum specialist *is* the general education program of physical education (typically labeled the "basic" program). At certain times, applications of curriculum theory must be directed toward professional preparation programs or graduate programs for those who are to give leadership in our research efforts. But these applications always need to maintain a concern for the student in the general education program whose experiences with movement phenomena and related opportunities for growth and development are the major focus of the teacher and the ultimate justification for both basic and applied research.

Macdonald and Clark (8) have stated that the derivation of objectives is the most fundamental problem in curriculum. They have pointed out that we have little or no research or theory to aid us in solving this problem. The 1973 summary of research on teaching physical education by Nixon and Locke (10), which is clearly the most authoritative work on this topic, offers a "learning framework for teaching and research" which has outstanding potential both for analyzing available data and for identifying important research gaps. However, a learning framework does not deal with the actual derivation of curricular objectives. Although there has been some excellent work more recently, notably studies by LaPlante (5) and Chapman (2), the resolution of value problems basic to curriculum focus remains critical.

It is my conviction that the rationale for physical education must be derived from analysis of its objectives or role in general education, from study of its values and potential meanings to the participant in the "basic" physical education program at all levels. Data currently available identify approximately 20 different "meanings" to be sought through participation in movement activities, ranging from joy of movement to spatial orientation, and from circulorespiratory efficiency to expression and cultural involvement (2, 5). I propose that all of these meanings might be incorporated in three value clusters to derive a rationale that encompasses all of present-day physical education. I identify these three value complexes as fitness, performance and transcendence.

Fitness includes such standard components as strength, flexibility and cardiorespiratory endurance. Performance encompasses all modes of skilled motor performance in sports, dance, aquatics, gymnastics and body mechanics activities. Transcendence, also called self-actualization, is defined by Phenix as "the experience of limitless going beyond any given state or realization of being."

> Every actuality is set within a context of ideal possibility. Every end realized becomes the means for the fulfillment of further projected ideals...the acknowledgement of transcendence suggests a curriculum that has due regard for the uniqueness of the human personality...A curriculum of transcendence provides a context for engendering, gestating, expecting, and celebrating the moments of singular awareness and of inner illumination when each person comes into the consciousness of his inimitable personal being. (4)

A "basic" program or a general education in physical education developed in accordance with this rationale would include much of what the best physical education curricula now offer, particularly as they are designed to achieve fitness or performance skill; but it would also be revolutionary in certain important respects, especially in creating opportunities to realize transcendence. The anticipated changes in current practice require some description.

One truly revolutionary change will be discarding the concept that physical education's responsibility begins with children in their fifth or sixth year and ends with persons reaching legal maturity at 18 to 21 years of age. Physical educators will work with early childhood educators to provide movement exploration and perceptual-motor development programs for three- and four-year-olds, guided by knowledgeable and sensitive adults. Guided movement experiences and planned perceptual-motor challenges will not be limited to school environments but will be included in the services of day care centers, pediatric clinics, and varied social agency programs. We will develop "head start" programs for those with unusual movement education or motor development needs. Enrollment will not be restricted to children from welfare families or those with multiple disadvantages, but will be encouraged for every child whose daily environment lacks the stimulation of novel and varied movement tasks, or whose responses to such tasks suggest the need for more intensive or extensive movement experience.

Elementary school physical education will be highly individualized and personalized. Although children frequently participate in groups, they can be guided within these groups toward self-awareness, consciousness of position in time-space, and identification of a dynamic self in an environment of moving objects and other persons. Teachers of elementary school children in America's third century will capitalize on the best that we have learned from each of the many advocates of movement education—guided exploration and discovery in a wide variety of activities with and without equipment; systematic and progressive experiences in fundamental locomotor skills and ball-handling skills; strenuous physical activity, involvement and success for everyone; and unique responses, creative expression and dance for each child. Adults provide innovative equipment; children invent their own ways of moving over, under and through it. Games as well as dances are created by the children.

Popular games are introduced, but boys and girls are not separated to play them. Everyone is expected to feel pleasure in dancing, just as everyone is expected to run as fast as one can and to throw a ball as efficiently as one's level of motor development will permit. Perhaps most important, teachers provide frequent guidance in individual awareness of the body in motion and of personal response to this inner being which compels him or her to fight actively to retain and extend the feeling of human joy in physically demanding and psychologically exhilarating movement.

Middle school physical education will continue emphasis on extending the child's sensory perceptions. It is more important that the child be aware of the feeling qualities of a successful physical performance than of the result as measured by a performance score. The child increases self-knowledge and self-confidence in experiencing gymnastic activities of all kinds, stunts which test balance and flexibility as well as strength, dances which permit free and expressive movement as well as those which require precision, control and endurance.

Attention should be given to enriching the environment, to making the surroundings for physical activity pleasant. Much of the programmed activity should be conducted outdoors in the natural environment which will be available when the gymnasium doors are locked. Games played on the sand, in the snow, on the ice, on a grassy slope, in the woods, have a special challenge and unique satisfaction. Track activities which have universal appeal—running, jumping, vaulting, throwing—can be given more prominence. Swimming is a high priority.

In the elementary school, movement educators have already begun the revolution in physical education. In the middle school, the physical education revolution will consist of breaking away from the domination of high school athletics and the limitations of activities and drills selected to develop the specific skills of three or four competitive team games. At this age, there are still many sport and athletic possibilities to explore.

The development of new games should be a goal of every teacher and every physical education class. Each child should have opportunities to test him/herself in a physically demanding activity as well as to find satisfaction in self-mastery. For every body type, there is some physical activity which makes it possible to surpass physical limitations and become a more integrated part of the universe.

The revolution in secondary school physical education will focus on the personal search for the ultimate athlete. According to Leonard's definition, there is no single "ultimate athlete." Each of our students has unsuspected human potential; each could become the ultimate athlete. If we, as educators, are to effectively aid the search, we must remember that changes in the nature of what is satisfying and rewarding to human individuals are bound to accompany significant political reforms. Does our world really need to encourage the territorial war mirrored in football, the emphasis on fakery reflected in basketball, the obsession with records and categories which now characterizes baseball the glorification of winning at all costs typical of so many athletic activities?

Activities which might receive greater emphasis in secondary school include running, aquatics, dance, dual sports, and "risk" sports. Running is the essence of most sports; it is the best test of all-around conditioning. It can also be a varied, fascinating, demanding, keenly satisfying activity. Youth who are out of touch with their own feelings and realities of the environment can be guided through "run for awareness" programs to discover, as even middle-aged persons have, that running is its own reward.

Aquatics brings the athlete in touch with a relatively unknown realm as mastery of the mysteries of propulsion through water opens up such worlds as diving, surfing and scuba diving. Dance can be openness to existence and full awareness, an attitude toward life which restores perspective. Leonard states without qualification his conviction, "If only one subject were to be required in school it would be...some form of dance—from nursery school through a Ph.D." (6). Dual sports in the secondary school are refined as a cooperative enterprise of two participants, providing the strongest possible defense as a stimulus for an ever-more-skillful offense, initiating each new action as a variation in the rhythmic flow of vigorous human activity.

The growth of "risk" sports during the past 30 years has been phenomenal. Rock-climbing, sky-diving, skiing, skin-diving, hang-gliding are a few examples. Perhaps one reason for the increasing popularity of "risk" sports is the opportunity afforded for integration with the universe. A man scaling the rocky face of a cliff becomes part of that phenomenon of nature. He relates precisely to every fault and crevice with just the right amount of force and angle of ascent. He doesn't move absent-mindedly or consciously seek a rational objective. He and the mountain are one, as he makes his way to a pinnacle. The woman who projects herself downward from a mountain peak on skis seeks not to reach a particular place or to score more points than an opponent. She seeks oneness with a snowbound world and the feelings of being suspended beyond safety leaning away from the hill, of sinking deep into the mountain on a fast turn, of a physical knowing the terrain while absorbing the ups and downs of the moguls, of near-flight as downhill speed accelerates. The surfer feels more of a person as he or she shifts weight with rushing, swirling waters and the cresting of a wave. He or she is brilliantly conscious of the coolness and wetness of water, of the warmth and brightness and glare of sunshine, of the sounds of breakers, of the smells of the sea—and of the inner feelings of his or her own balance, motion, tension and control. Evidence has been reported that regular participation in risk sports makes us more efficient, more creative, and more productive persons. Perhaps it is because these sports share not only an element of risk, but also aspects of boundaries crossed, limitations transcended, and perceptions gained (6).

These activities suggested for more attention in physical education programs all provide possible contexts for learning balance and centering, for developing greater conscious awareness and body balance, and for strengthening the motivation and willingness to push beyond previous physical limitations. All of these should be among the goals of school physical education. Our programs should also help every young person to find his or her own game. If current games do not offer the right choices, new games such as infinity volleyball, circle football, boffing, and yogi tag can be invented. It is time to create new games with rules more in tune with the times, especially games with no spectators or second-string players.

College and university students need continuing opportunities for physical activity programs emphasizing personal fitness development programs, participation in lifetime sports, and body experience focused in a personal becoming. Those still seeking a "fit" in an activity medium might be guided into inner tennis, awareness running, yoga, orienteering or zen archer. In process terms, emphasis will be placed on perceiving, refining, and creative movement processing.

Physical education can no longer neglect its responsibility to the post-secondary school adult. Seeking personal well-being and harmony through physical activity is a lifelong pursuit. Those who are most successful serve as a model and guide to others, sharing what is indeed most human. We need clubs where we can choose to learn "The Inner Game of Golf"; public lands where jogging trails provide access to beautiful surroundings, where orienteering courses can be set for athletes of varying abilities, and where adults and children together can discover new games; instruction for the Inner Skier (Self 2); and commitment to schedules which build in a continuing search for the inner athlete.

A sound rationale for physical education must focus on its objectives, its potential values in a liberal or general education. The true value of physical education is undisputedly the meaning it has to the individual participant. Meanings vary for different persons and for any one person at different times or in differing contexts. Yet the shared meanings which permit us to describe relationships in physical education and to structure curriculum can be encompassed in the three value clusters of fitness, performance and transcendence. Personal meaning in movement or physical activity can be sought through any one or any combination of the three.

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REACTIONS OF AN ADMINISTRATOR TO JEWETT'S "A CURRICULUM VIEWPOINT"

Robert R. Luby

I hesitated initially to accept this invitation to react to a scholarly paper presented to the American Academy of Physical Education. As a city director of health and physical education in a so-called Great City, Detroit, in this era of urban crises, I consider myself fortunate merely to survive from day to day on the job without assuming additional responsibilities.

Desegregation, busing, lost millage elections, decentralization, reorganization and re-reorganization, demands for paper exercises in accountability, cutbacks in teacher services, union constraints on regional and all-city teacher in-service meetings, cutbacks in equipment and supplies, elimination of all subsidies for participation in professional conferences, termination of athletic programs, unfilled administrative supervisory vacancies—all these and more problems conspire to frustrate and interfere with normal professional educational functioning. However, I am glad I accepted the assignment for several reasons.

Our cities, after all, still comprise a significant percentage of our population and it is important that our problems be understood and addressed by professionals such as those represented in the Academy.

My doctorate is in curriculum development in elementary education with special emphasis on the Ralph W. Tyler rationale for curriculum development (1). Thus, I retain a basic interest in curriculum theory if not continued involvement as an area of scholarly inquiry.

Then, too, the assignment exposed me to many interesting points of view identified by Dr. Jewett which I found stimulating and relevant to my continuing responsibilities for curriculum leadership in a city school system of 240,000 children, 229 elementary schools, 68 middle schools and 22 high schools and a corps of approximately 600 specialized teachers of physical education.

I found Dr. Jewett's analysis of curriculum theory most helpful in my approaching an understanding of our theme of relationships in physical education. The five conflicting conceptions were well defined. It is a painful surprise to find in our field that we are normally "academic rationalists" and "conservative in political orientation." Considering some of our origins, however, in the service of the military and in European discipline, this seems understandable.

Dr. Jewett concludes that with the common denominator of human movement phenomena, all subdisciplines of physical education are inextricably related to curriculum. Thus, she established clearly, it seems to me, the interrelationships and relevance to sound curriculum development of biomechanics, exercise physiology, motor learning and skills acquisition, social psychology and sociology, historical perspectives and criticism, and the philosophy of sport and physical education.

As I reflect on the work of my department and on some of the current materials and publications of my counterparts in other cities with which I am familiar, I see evidence of the impact of many of the above disciplines in the guides and guidelines which have been produced.

In Detroit, for example, this past winter our teachers and supervisors wrote two new publications which illustrate this, i.e., *A Guide for Teachers of Co-educational Physical Education in the Detroit Public Senior High Schools* and *Ethical Standards for Coaching Behavior.* Both publications, in my judgment, show commendable reliance on recognized authoritative sources including that new standard, Title IX.

A key part of Dr. Jewett's paper appears to me to be the assertion that (1) the direct focus and working concern of the curriculum specialist is the general education program of physical education and (2) the same concern for the general educational program should be the major focus of the teacher and the ultimate justification for both basic and applied research in the field. This is a difficult ideal to achieve at the high school level in Detroit, incidentally, where all staff are responsible for both teaching and coaching. We know, in fact, this is a universal dilemma. It is difficult to serve the two masters of athletics and classroom instruction.

Dr. Jewett's reduction of approximately 20 different meanings to be sought in movement activities to three value clusters I find useful. Fitness and performance are self-explanatory values in our program. Transcendence, also called self-actualization, is defined as the experience of limitless going beyond any given state or realization of being. These three clusters do appear to be all-encompassing of present-day physical education. To illustrate the last cluster: on occasion, I have approached transcendence on a tennis court; and a colleague of mine who bowls just once a week insisted he was in a "state of Zen" when he bowled a 700 series only last week.

Dr. Jewett suggests some revolutionary changes with which I agree. She believes that our professional responsibilities should go beyond the traditional school years and include concern for preschool programs, day care centers, pediatric clinics and varied social agency programs. How can our universities and school system staff assist? We have not been involved in Detroit.

She believes that elementary school physical education programs should be highly individualized and personalized with the accent on guidance towards exploration, experimentation and growth towards self-awareness. Even in depressed and disadvantaged Detroit, we find examples of a few superior programs where creative activities, innovative equipment, opportunity for child experimentation and self-discovery exist. These schools are a pleasure to visit. That such schools are not universal in Detroit is perhaps a reflection of the fact that in the 30s, the heyday of supervision, we had 14 consultants in the field. Today we have one and she also has other responsibilities. Needless to say, sound theory into appropriate practice requires personnel for continuous leadership and evaluation. The unsolved financial problems of my school system prohibit the assignment of such resources.

I strongly support Dr. Jewett's emphasis on enriching the physical education environment. Schools should try to have "games played on the sand, in the snow, on the ice, on a grassy slope, in the woods." Incidentally, even though I remained a beginning fiddler, I remember using the violin in my first teaching assignment at a school adjacent to the Detroit River. It was often exhilarating to take a double section of children to our grassy playground and country fiddle for periods of folk dancing and singing games. Several of our teachers currently use guitars in much the same way.

Dr. Jewett believes the revolution in secondary school physical education will focus on the personal search for the ultimate athlete. Perhaps the change will be accelerated by what I perceive as an oversaturation of television sports to which we are being subjected. Are not these programs becoming somewhat stale, with some franchises failing and the public beginning to turn away from the all-too-often overdisciplined, robotized and cliche-ridden athletic responses on view?

Running is identified in the paper as the essence of most sports and an excellent goal for the guidance of out-of-touch youth through run-for-awareness programs to discover that running is its own reward. As an almost daily jogger, I like this expression.

The Council of City-County Directors of AAHPER, of which I am a member, is currently stressing the concept of "turn-on" programs in physical education similar to those referred to in Dr. Jewett's paper, including the so-called risk sports of rock-climbing, sky-diving, skiing, skin-diving and hang-gliding.

George Leonard is quoted as stating that, "If only one suject were to be required in school it would be...some form of dance—from nursery school through a Ph.D." Multi-ethnic Detroit has always had a rich tradition of dance, elementary through high school. Wayne State University has always produced excellent teachers with strong dance backgrounds and we continue to benefit from this training. It is mind-boggling to contemplate what one full-time dance education coordinator could accomplish in our school system. What potential for coincidental sorely-needed education in cultural pluralism through dance.

In concluding my reactions, I would like to comment on two issues. The first is referred to by Dr. Jewett in the category of a post-secondary school implication of her paper. The second is an area of what I believe is of potential concern for the Academy which could contribute to the protection and improvement of physical education programs in our cities.

On a recent visit to a large university campus as a member of an evaluation team serving the National Council for the Accreditation of Teacher Education (NCATE), I found that the university was providing an excellent physical education service program to the general student body—all on a voluntary basis. Facilities appeared to be overused, implying that the university should consider some increase in facilities, equipment and supplies as well as a greater increase in teacher and leadership services. This indeed became one of my NCATE recommendations.

The other issue relates to how incredibly differentiated and diverse the delivery of educational services is in our nation. This is both a strength and a weakness. The cities, in my judgment need a self-evaluation approach and instrument similar to that employed by NCATE. Perhaps the Academy can be challenged to study such a possibility for city physical education programs.

In summary, Dr. Jewett's paper has stimulated my thinking greatly and I look forward to sharing its insights with my teachers and administrators in Detroit.

REFERENCE

1. Tyler, Ralph W. *Basic Principles of Curriculum and Instruction.* Chicago: University of Chicago Press, 1950.

ETHICS, DUE PROCESS, DIVERSITY AND BALANCE: A PARTIAL PORTFOLIO FOR THE PROFESSIONALS OF AMATEUR ATHLETICS

Stephen Horn

In the long list of problems confronting America's systems of higher education, few command as much media and public attention as intercollegiate athletics. At all levels—whether one is a college or university president, a member of a faculty, or an athletic director or a coach—one is faced with the necessity of finding ways to preserve the amateur status of athletes in intercollegiate competition.

Why are so many of our campuses increasingly perceived as little more—or little less—than farm clubs for professional teams? The answers are not difficult to find. We all know of a college or university somewhere that has resolved a budget crunch by amputating a minor sport of two to preserve its football or basketball team.

We have all heard the rhetoric of coaches and overzealous boosters as they have pledged allegiance to motherhood, the flag and amateurism before the local service club. And then, we have read feature stories in newspapers telling us how this or that athletically promising youngster—probably the child of humble parents—has been adjudicated a "hot property" and is being wooed by coaches who compete in ways that we might charitably call curious. Obviously, on occasion, more than simple letters of intent are being left beside the milk cartons on the kitchen tables.

How many times have we heard the story of the coach who found the parents of some of these student athletes to be extremely sophisticated about the options available to their offspring. Their conversation goes something like this: "Well, you know, coach, we had a visit the other day from someone from such-and-such university, and he offered. . . ." At this point you may insert whatever comes to mind: cash, cars, illegal job for parents or athlete—or any combination of the above.

Quite clearly, in this age of abundance and mass marketing, of amplification and mass culture, of entertainment values (and rewards) permeating society, amateur intercollegiate athletics is threatened.

I speak as a university president, not as an expert on the subject of intercollegiate sports in America. But, like every other college president, I must rely on you, the professionals, for guidance and leadership in the search for remedies to the wrongs that are now threatening amateurism and the balance and diversity of intercollegiate athletics and sport on our campuses.

The job does not end at the gymnasium door or campus gate. It is not something that can even be limited to work within a single regional athletic conference. No, the challenge is national and not only at the collegiate level. It must be met with concerted efforts on several levels.

Quest for Professionalism and Ethics

The first level, I sincerely believe, concerns the professionals—the people who have a vested interest in keeping amateur athletics truly amateur. Although no irony is intended, we must talk about professionals in the context of amateur sports. They are some of the members of groups such as the American Alliance for Health, Physical Education, and Recreation. They are the men and women who dedicate their lives—and earn their living—through the perpetuation, as well as the administration and coaching, of amateur sports.

It is their responsibility—as professionals—to keep their house in order. At present that is a difficult, even impossible, assignment. Someone once described the rules and regulations which guide most intercollegiate athletics in this country as "being on a par with those commonly found on the back of insurance policies written in flood or earthquake prone areas or similar to those regulations promulgated by the Internal Revenue Service."

Fine print, however, does not make for clear understanding. As Bob Timmons, head track coach at the University of Kansas has said, "The rules should be written in such a way that the true meaning of the rule is clear to everyone. If rules are written in such a way that it takes a lawyer to interpret them, they should be rewritten."

What rules are we talking about? Surely, not the ones governing timekeeping and getting into the *Guinness Book of World Records.* We are talking about the rules of behavior—what some old-fashioned folk call "ethics." It is the code that states the difference between right and wrong.

I believe professionals should have such a code. Certainly, in a nation that has undergone the trauma of Watergate, it should be possible for the professionals involved in amateur intercollegiate athletics to draw up and agree to abide by such a code.

Every professional group has some form of code. There are codes for doctors, lawyers, dentists, nurses, insurance actuaries, and so on. These codes are not just statements of noble sentiment and high purpose; they are statements of responsibility at the basic level of individual practice. They are codes of responsibility for those who work where the action is.

The life of these codes does not end after they are agreed upon. Coach Timmons reached his conclusion about rules after a survey of NCAA coaches revealed that some did not even have the organization's manual by which their own activities would be judged. And, furthermore, many of those who had it, did not understand the rules anyway.

What I, and I believe many others, think is necessary is a code that not only spells out the rules of agreed-upon conduct, but also prescribes in equally clear terms the process by which the rules will be enforced. Such a process would preserve the rights of the accused and would assure fairness for all. To be effective, it should be administered by a group that is absolutely above suspicion and not part of any constituent organization or group. I would suggest an independent review board composed of individuals of the stature and integrity of retired federal judges. Like a federal regulatory agency, it ought to have a separate staff to ferret out the facts.

Beyond that, this regulatory body should have the power to make the rules living doctrine. Professionals should not be willing to blink or turn their heads when their own code of ethics is violated by some of their colleagues. Anyone who has grown up within our democratic system, with our legal and judicial systems, knows—yes, feels—that punishments should not only fit the crime but that only the guilty should be punished.

Despite our knowledge and emotional attachment to these concepts as Americans, we still seem to practice something akin to mass punishment in the area of intercollegiate athletics. Seventy-one years ago, the United States Army dishonorably discharged 167 soldiers, all black men, for a frontier shooting in Brownsville, Texas. President Theodore Roosevelt had them punished for their conspiracy of silence in refusing to testify during the investigation. The records of these men have since been cleared. In 1972, Secretary of the Army Robert F. Froehlke said, "the concept of mass punishment has for decades been contrary to Army policy and is considered gross injustice." The Army added that the Brownsville incident was the only documented case of its kind in its history. It is a good thing that the spokesperson was not examining the disciplinary policies of American intercollegiate athletics.

Every reader of the sports pages knows that, under present conditions, when the rules are broken, students may suffer, teams may be penalized and institutions shamed. At the same time, the professionals involved—the coaches—simply get another job at another institution. That is why some of us have worked for reform in the relationships between conferences and national associations on the one hand and colleges and universities on the other.

At an annual convention of the National Collegiate Association in San Francisco in 1974, I strongly supported a proposal aimed at involving—and making responsible—the chief executive officers of member institutions. The proposal required chief executive officers—presidents—to certify each year that their coaching staffs were in compliance with NCAA regulations. At that time I sought to add a provision which would make ineligible for any NCAA-sponsored meet or tournament the team of individual competitors from an institution where, within the past three years, a coach was employed who had violated the NCAA principles of ethical conduct. Under the parliamentary situation that proposal could not be voted upon.

A year later there were 26 presidents—rather than only 1 or 2 at the NCAA meeting, and we succeeded in getting a very similar proposal approved which provided for a two-year ban. In other words, institutions as well as the coaches and players—have a responsibility in regard to honesty and amateurism, as well as the maintenance of balances—and not only crowd-pleasing—athletic programs.

Earlier I suggested some of the problems posed by parents as well as prospective student-athletes. I am convinced that there should be one National Letter of Intent administered by the NCAA in which there is also printed a statement where parents and student-athlete alike certify that no illegal recruiting inducement has been provided. Should violations occur which later result in severe sanctions being levied against an institution's athletic program, perhaps a few well-placed and well-publicized civil damage suits against those who have participated in such illegal activities would help assuring future compliance by others.

We should include possible sanctions on the increasing number of agents—sometimes called "advisers" or "just friends"—who seek to represent the student-athletes and to divert them from amateur status because of a monetary stake in their future. I believe the states should begin to license such agents and to require disclosure of the contracts (both written and oral) that they have entered into with student-athletes who have eligibility remaining in high school or college. These laws should have teeth. A few years ago, it was found that two unscrupulous "agents" were sending checks to various highly recognized basketball players across the country. When the student-athlete cashed this "manna from Heaven-knows-where," he unknowingly committed himself professionally and lost his amateur status. This fact was often unknown at the time to the athlete, but would have been known to the coach and director of athletics if they had only been consulted.

In California, there has been an attempt to remedy the matter. In 1975, California Assemblyman Fred Chel introduced legislation (AB998, March 3, 1975) which, if enacted, would have required that recruiting agents file for a *registration certificate* with the secretary of state. Its implementation would have prevented a tragedy such as the one that befell Villanova University in 1971. That was when the university had to forfeit its runner-up position in the National Collegiate Basketball Championship and return more than $66,000 in net receipts because, unbeknown to the university, one of its players, Howard Porter, had signed an American Basketball Association contract prior to his participation in the NCAA Tournament. Under the Chel legislation, such a contract would have been filed with the institution and the student would have been able to disaffirm it within 10 days. If a contract were negotiated in violation of the legislation, it would be void and unenforceable. A recruiting agent who failed to conform with the law would be guilty of a misdemeanor. The legislation cleared the California State Assembly, but failed in a committee of the State Senate because some senators feared it might create an added "bureaucracy" in the office of California's Secretary of State, whose previous activist incumbent had recently become governor.

From the standpoint of the university, I would argue that it is in the self-interest of some professional agents to have student-athletes lose their amateur status in order that they might financially benefit by representing them with a professional sports organization. In my judgment, this constitutes conscious undermining of intercollegiate athletics and the principle of amateurism for a selfish economic interest. It is clearly not in the public interest nor often in the best interest of the student-athletes involved. Not infrequently these students leave school early to sign with a professional team. Headlines are made by their contract. However, a few months later they are cut from the professional team with much less fanfare. The student has lost his amateur status and thus the opportunity to develop himself further as an athlete in a collegiate situation. Also he often loses interest in college and remains unemployed.

College athletics and professional sports both deserve better than to have a few such "buzzard" agents covertly preying around campus gymnasiums. This legislation would at least give the university due notice that agents are in the vicinity, and the opportunity to protect student-athletes from having their playing opportunities severely limited by the transgressions of a few.

Need for Greater Scrutiny by the Sports Media

We have heard much in recent years about investigative reporting by the press and media. Such probing reporting, however, seems limited to politics and government. It does not refer to the sports page or sportscast. Sports news generally remains "wins and losses" and the glorification of contract prices. Little is said about the student-athletes who often never graduate. There are few reports of the players who are only briefly professional before they are discarded to the lines of the unemployed and are but a distant memory to the educational establishment and the community which thoroughly used their talents.

Due Process for Student-Athletes

We need rules to protect the rights of student-athletes. The membership of the NCAA has seemed more willing to make a commitment to ethical conduct than it has either to assure due process for student-athletes or to reduce the rising costs of intercollegiate athletics.

First as to due process. At the 1975 NCAA convention, I proposed that a due process hearing be held by member institutions prior to deciding a student-athlete's eligibility, provided that the institution had established procedures for such matters of student discipline and sanctions in dealing with all of its other students. Knowing that this approach to treat student-athletes comparably with student-non-athletes would be suspect—especially in the middle of what might be a winning season—the proposal recognized that "in no case shall such a hearing and final decision extend beyond more than 30 days from notification by the NCAA." But even that exception was to no avail.

Referring to this proposal and the floor debate in the 1976 case of *Regents of the University of Minnesota, et al.* vs. *National Collegiate Athletic Association*, Chief Judge Edward J. Devitt of the United States District Court in Minnesota commented, "Had it or some similar provision been included in the NCAA enforcement procedure so as to make crystal clear the hearing rights of student-athletes and the respect such hearings must be accorded by NCAA, this unfortunate confrontation between the University of Minnesota and the NCAA might have been avoided." Earlier Judge Devitt had observed that "it apparently has not been fully appreciated by the NCAA that its member institutions have a dual obligation to the NCAA *and* to the students" (p. 9).

For either an institution or a national association to ignore the fundamental rights of student-athletes in this age of due process is simply wrong. In matters of due process on campus, student-athletes must have the same rights accorded every other student.

But what of a student-athlete's rights beyond the campus? What of that student's right to participate as he or she sees fit in athletic endeavors that are not under the sponsorship of the immediate institution? Should we apply a different standard to that student because of membership on the track team than we would if membership was in the university band? Some would conclude that we should, on the grounds that we are providing an athletically related grant-in-aid and therefore the student-athlete's first obligation must be to the institution. We also provide some music scholarships or grants; do we insist that after a student has performed in marching band at half-time that he or she cannot participate in another musical group such as a dance band—with or without compensation—later that evening or on weekends? Both students have unique talents. I would agree that the first obligation of an enrolled student should be to advance his or her educational welfare and to utilize his or her talents at the highest level to help teammates and not to harm his or her long-term individual interests. But who should decide where that balance is to be struck between the institution and outside opportunities for participation?

Dr. George F. Anderson, executive director of AAHPER, expressed it well when he noted in testimony prepared for the President's Commission on Olympic Sports that:

> What must be done is to provide athletes with protection against being used as pawns in any power play by providing them with a "Bill of Rights" that would prevent any group from having or enforcing rules or regulations that would deprive an individual athlete the opportunity to participate in a club sport, open meet, or in national or international competition.

The President's Commission recognized the value of this suggestion and the 1974 action of the U.S. Olympic Committee which provided for binding arbitration before the American Arbitration Association in the case of a dispute over the athlete's right to compete. After reviewing case after case where various regional and national bodies had denied what it called "the essence of being an athlete—the right to compete," the Commission proposed that Congress enact "An Act to Protect an Athlete's Right to Participate in Unrestricted Competition" which would permit the amateur athlete or the U.S. Olympic Committee on the athlete's behalf to institute a civil action in a federal district court to secure relief from denials of competition and which, by mutual agreement of the parties, would also permit the dispute to be submitted to a regional office of the American Arbitration Association.

The Commission also recommended that the United States Olympic Committee Charter be amended to require "Group A" members of that body to agree to such binding arbitration as a condition of membership.

The President's Commission correctly concluded that after an appropriate hearing, the particular educational institution at which an athlete is enrolled is in the best possible position to make an evaluation "regarding any conflicts between potential amateur competition at a national or international level" and "the educational welfare of amateur athletes who are students at such institution" or the need "to maintain and protect established sports programs during the regular season for each particular sport at such institutions." (See section on "Athletes' Rights," pp. 59–65 and appendix on "Draft Legislation Athletes' Rights," pp. 139–140, in Volume I of *The Final Report of the President's Commission on Olympic Sports,* 1975–1977.)

The members of the American Alliance for Health, Physical Education, and Recreation should take the lead in all of the relevant national athletic and sports associations in assuring that there is a commitment by them to these recommendations which have been made by the President's Commission. Without your leadership, the student-athlete will continue to be a pawn in the hands of powerfully organized brokers.

As we have seen with these internal and external pressures on ethics, due process and professionalism, amateur athletics in America might be largely collegiate, but it does not operate in an ivory tower. While it may try to be amateur, it is also certainly far from inexpensive.

The Rising Costs of Intercollegiate Athletics

Those of us in the NCAA do not have a good record in controlling costs. In August 1975, we held what has been referred to as a special "economy" convention in Chicago. We would probably have saved more money for our programs if most of us had stayed home. Since I assumed that in this time of limited resources collegiate delegates might be interested in economy, I suggested that over a three-year period we phase down the maximum grant-in-aid awards in football from 105 to 65. You can imagine how much support that proposal received: only one-sixth of Division I supported it despite the evidence prior to the convention that showed most football programs were deficit propositions. Norval J. Ritchey, athletic director at the University of Oregon, had estimated that 100 of the then 129 Division I schools were running deficits in football. *The Los Angeles Times* had concluded that only 10 percent of the intercollegiate athletic programs were in the black.

The NCAA Council—composed of the intercollegiate athletic establishment—sought to reduce the maximum football grants-in-aid from 105 to 90, but it failed too. The "economy" convention settled on 95 grants-in-aid. And that is the limit that remains today despite hours of debate in later conventions. I might add that we knew we were in trouble when Division II *increased* its grants-in-aid from 45 to 60 twenty minutes prior to the vote in Division I!

But that does mean that many Division I members do not wish to economize. They do—but not on football. It was only after great difficulty that a number of us prevented the NCAA at its 1977 Convention from further restricting the total number of grants-in-aid for all sports except football and basketball below 80, and also placing those, but not football or basketball grants, on a financial need only basis.

There is irony in this. Many of the more powerful football-playing Division I members of the NCAA have claimed that they want a balanced and diversified intercollegiate athletic program. In the last convention, a reorganization proposal in part was sought to recognize such diversity. But the stress was again on football rather than on the diversity of program and that is why the Division I non-football, but major basketball playing institutions buried within five minutes the two years of reorganization work which had been undertaken by some of the superpowers.

I should point out that I am not opposed to intercollegiate football. In fact, I enjoy it. Long Beach, with its 55 to 60 football grants-in-aid, fairly regularly defeats Division I teams with 75 or more grants-in-aid. What I am suggesting is that with the quite proper demands for additional resources to support intercollegiate athletic opportunities for women and student-athletes in all sports other than football and basketball, the football program must be brought into a reasonable relationship with the goals and purposes of a balanced and diversified intercollegiate athletic program.

I believe that the alumni, community supporters generally, students, and others will still turn out to see—or turn on a set to view—a football program funded by 65 to 75 grants-in-aid just as much as they will see or view one funded at the current maximum of 95. Reducing at least 20 to 30 excess grants-in-aid in football so that those funds could be directed into other areas of sport poses exactly the same difficulties as does a reduction in nuclear missiles which would divert funds from military to civilian purposes. All the superpowers need to agree to the standard and reduce on the same schedule if we are to alleviate the present degree of suspicion and "overkill."

A collision course is also underway within the NCAA and between the AIAW and NCAA over the question of whether student-athletes should receive more than tuition and fees unless that aid is based on recognized financial need criteria. At its 1977 Delegate Assembly, the Association for Intercollegiate Athletics for Women adopted a motion, effective August, 1978, "that financial aid based on athletic ability be limited to a value equivalent to tuition and fees at each AIAW institution."

In the last two NCAA conventions, the number of college and university presidents has increased from 2 in 1974 to 26 in 1975, to now

60 to 80 in 1976 and 1977. Most of these campus chief executives have fought for the principle of athletic aid based on need after tuition and fees. As you know, in 1976 we were able to force a roll call and came within five votes of succeeding within Division I. The battle is not yet over.

NCAA Television Plan

Why is it, then, that such little progress has been made? Because a majority of Division I institutions have their football program underwritten by the NCAA Television Contract and thus do not have to face fiscal reality. Regrettably, too, many institutions in Division II and III have been apathetic with regard to their own self-interest as well as the long-run interests of amateur athletics generally.

As a university president who participates actively in the NCAA, I know that those responsible for intercollegiate athletic programs face new challenges as a result of Title IX. Funds must be found to guarantee women opportunities equivalent to what men have traditionally received. It is in that context that we should review the NCAA television plan.

According to the *1976 Television Committee Report*:

> The NCAA's participating members received $18 million in television rights in 1976, under terms of the Association's agreement with ABC-TV. Of that total, $540,000 was paid as rights fees for the Division II and III play-off games; $150,000 was paid for rights to televise five NCAA championships, and $150,000 was allocated for production costs and rights fees for telecasting two regular-season games of members of Division II and two of Division III. (p. 7)

The committee report goes on to note that "the remaining monies [over $17.1 million] were remitted in full to the participating institutions under the terms of the contracts between the network and the individual institutions."

Of the 716 NCAA member institutions, 472 currently field football teams (137 in Division I; 131 in Division II, and 204 in Division III). Two-hundred and forty-four institutions do not play intercollegiate football.

In the 1976 college football season, 52 different institutions appeared in the regular NCAA-TV series, 43 appeared in various types of exception and closed circuit telecasts for a total of 95. Through various conference arrangements, revenue from the series was shared with 122 institutions. Another way of viewing NCAA-sponsored television is that over the 25 years of network coverage, 138 institutions have appeared at least once, and 48 institutions have had 13 or more appearances.

Recently the Atlantic Coast Conference has expressed increasing concern with regard to many aspects of the NCAA Football Television Program. It agreed with the NCAA Division I Steering Committee that there has been a trend "to promote a television aristocracy." The ACC correctly noted that the participation numbers, such as those I have previously cited, do not reflect the equities involved. It found that 10 institutions received "almost one-third of the revenue derived from television during this six year period (1970-1975) and further, that 20 institutions have received 52 percent of that revenue." The TV revenue can be substantial. Notre Dame and Texas each received over $3 million in television revenues during this period. Football pays. For some.

It is clear that the current NCAA television contract is helping only a minority of the NCAA membership. It is not helping *most* football playing or most *non*-football playing schools.

Just as football and basketball have often provided a portion of the revenue at the campus level to maintain a diversified and balanced intercollegiate athletic program, so should a portion of the increase in the proceeds from the NCAA television contract be used to underwrite that program at the NCAA and campus level. Assuring the current base of $17.1 million to the institution whose football contests are televised—and even adjusting that base for inflation—I believe that the NCAA should first dedicate the incremental gain in its new contract to providing a national system of athletic insurance for all 225,000 student-athletes in 716 member institutions.

Second, the NCAA should use a portion of its increment in the TV contract to fund the full costs of transportation and living expenses for all team and individual competitors in all NCAA championships.

I know there may be those among you who might think that I have dwelled too long and pressed too hard on some of the negative aspects of intercollegiate athletics. However, I cannot remain indifferent. I have seen the lives of too many young people scarred by indifference to the procedures that should govern the professionals who guide our amateur sports.

We live in an age where bigness is sometimes confused with goodness, where life experiences are reduced to the substance of too often dulling television shows. We cannot—certainly not in the name of amateurism and supposedly health-producing sportsmanship—simply allow student-athletes to be perceived as products in an assembly-line factory. They are all human beings, not just meat on the hoof. Some may, indeed, end up in the brilliant glare of the winner's circle. But we must be concerned with the fate of the rest.

APPENDIX

NEW ACTIVE FELLOWS 1977

Philip G. Gollnick
James G. Hay
Maxwell Howell
Robert Singer
Jack H. Wilmore

NEW CORRESPONDING FELLOWS 1977

Robert G. Glassford
John E. Kane
Tetsuo Meshizuka

RECIPIENT OF CITATION

Thomas M. Vodola

RECIPIENT OF THE HETHERINGTON AWARD

Karl W. Bookwalter

MEMORIALS

Dorothy S. Ainsworth (1894–1976)
Yoshihiko Kurimoto (1897-1973)
Paul E. Landis (1899–1976)
Cyrus Mayshark (1926–1976)
Philip Smithells (1910–1977)
Jurg Wartenweiler (1915–1976)

AMERICAN ACADEMY OF PHYSICAL EDUCATION
March 1977

ACTIVE FELLOWS (97)

1. Abernathy, Ruth, Ph.D., (91)
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3. Allen, Catherine L., Ed.D., (157)
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4. Allenbaugh, Naomi, M.A., (199)
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5. Alley, Louis E., Ph.D., (185)
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6. Ashton, Dudley, Ph.D., (137)
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7. Barrow, Harold M., Ph.D., (216)
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2. Carpenter, Aileen (1907-1944)
3. Gulick, Luther H. (1865-1918)
4. Hartwell, E. M. (1840-1944)
5. Hitchcock, Edward (1828-1911)
6. Leonard, Fred E. (1866-1922)
7. Ling, Per Henrik (1776-1839)

8. Sargent, Dudley A. (1849-1924)
9. Seaver, Jay W. (1855-1915)

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1. Bauer, W. W., M.D. (1893-1967)
2. Crampton, C. Ward, M.D. (1877-1964)
3. Dawson, Percy M., M.D. (1873-1971)
4. Deaver, George G., M.D. (-1973)
5. Brundage, Avery (-1975)
6. Gilbreth, Lillian, Ph.D. (-)
7. Jean, Sally Lucas (1878-1971)
8. Jones, Harold E. (1894-1960)
9. Lindeman, Edward C. (1885-1953)
10. Rodger, James Fredrick, M.D., D.P.H. (1870-1965)
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12. Stack, Herbert, Ph.D. (1892-1967)
13. Strang, Ruth M., Ph.D. (1895-)
14. Tuttle, W. W., Ph.D. (1892-1969)
15. White, Paul Dudley, M.D. (-1973)
16. Wolffe, Joseph, M.D. (1896-1966)
17. Woody, Walter Thomas, Ph.D. (1891-1960)

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1. Bisquertt, Susarte, Luis, M.D. (1895-1970)
2. Buck, H. C. (1884-1943)
3. Bukh, Niels (1880-1950)
4. Caceres, Alvarez, Carlos (-1951)
5. Diem, Karl, M.D., Hon (-1962)
6. Duras, Fritz, M.D. (-1965)
7. Ikai, Michio (-1971)
8. Knudsen, K. A. (1864-1949)
9. Kurimoto, Yoshohiko (-1973)
10. Linchard, Johan (1870-1948)
11. Mathias, Eugene (-1958)
12. Munrow, A. D. (-1975)
13. Otaini, Buichi (-1966)
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